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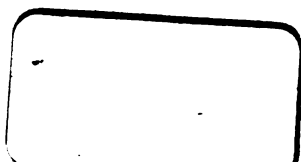
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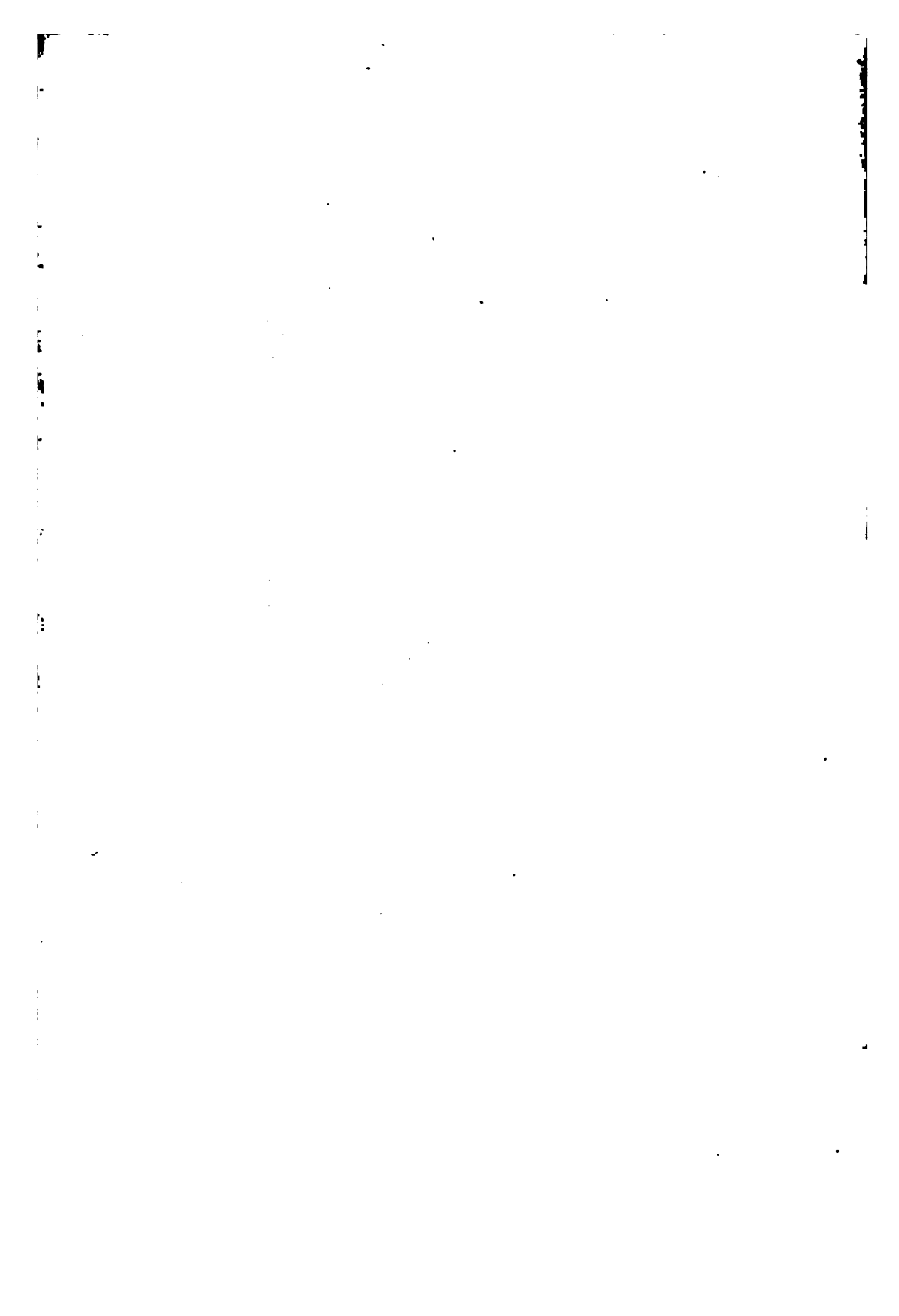
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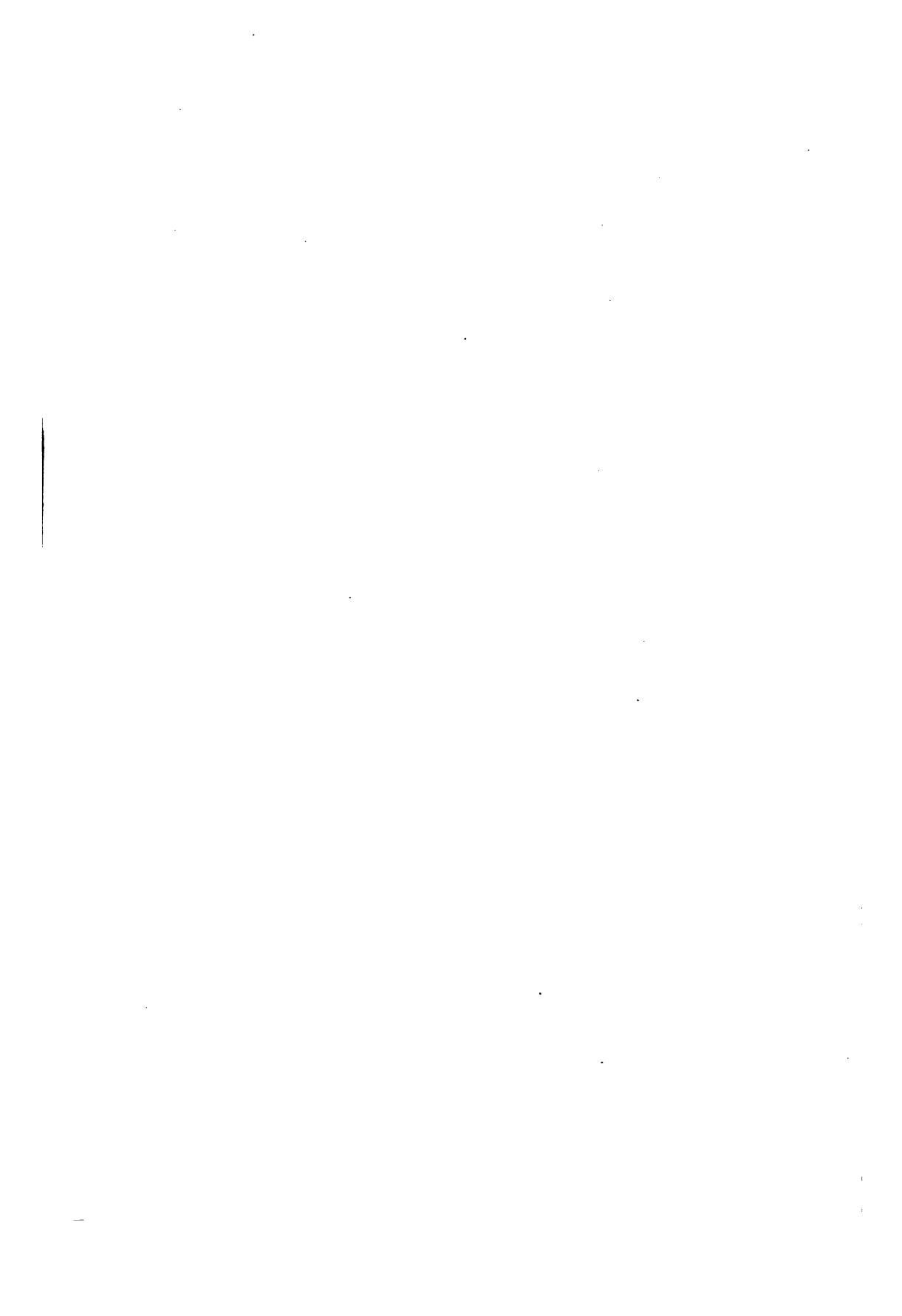
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OF
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A MONTHLY PERIODICAL

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JANUARY, 1894.

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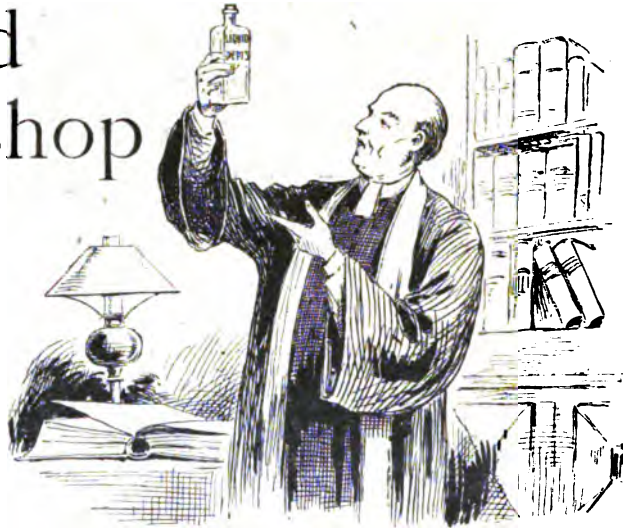
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The Good Old Bishop

*"It is of a nature so mild
and benign, and Proportioned
to the human constitution,
as to warm without heating,
to cheer but not inebriate."*
—BISHOP BERKELY.

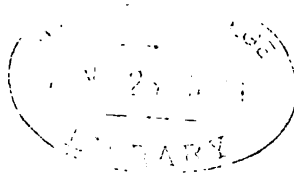


must have had Liquid Peptonoids with Coca in mind when he evolved the above sentiment. It is "proportioned to the human constitution" in that it contains all of the essential nutritive elements of beef, milk and gluten, ready for immediate absorption and appropriation. It "warms without heating" and cheers without inebriating, because the reconstructive and force-sustaining potency of the Peptonoids anticipates and nullifies any reactionary effect of the Coca.

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VOL. XIX.

January, 1894.

No. I.

THE
Journal
OF
Nervous and Mental Disease.

Original Articles.

**A FURTHER STUDY OF HYSTERICAL CASES
AND THEIR FIELDS OF VISION.**

By JOHN K. MITCHELL, M.D.,

Assistant Physician to the Infirmary for Nervous Diseases, Philadelphia.

AND

G. E. DE SCHWEINITZ, M.D.

Ophthalmologist to the Infirmary for Nervous Diseases, Philadelphia.

IN *The American Journal of the Medical Sciences*, November, 1889, we described eight cases of hysterical anæsthesia, together with an examination of their fields of vision. The present communication comprises a much more extensive study of hysterical patients, with special reference to disturbances of the general and special senses, and includes the records, by way of contrast, of other cases in which the neurasthenic element predominated over pure hysteric manifestations, of two cases of spinal injury, with remarkable changes in the visual fields, and of one example of pure malingering.

The literature of the ocular manifestations of hysteria is an extensive one, the observation of alterations of the color-sense in this affection dating back to Galezowski's publication in 1865. An analysis of this literature in a purely clinical communication, such as the present is intended to be, would be out of place. Those interested

will find references to the more important papers in our previous communication;¹ in the thesis of Dr. Pansier,² which contains a complete bibliography up to the spring of 1892; in the monograph of Drs. Hermann Wilbrand and Alfred Saenger;³ in a recent paper based upon studies in Nothnagel's clinic in Vienna, by Drs. L. V. Frankl-Hochwart and Alfred Topolanski,⁴ and in the brochure of Dr. Wilhelm Koenig.⁵

The visual field in each instance was measured with the aid of a perimeter; either one modelled after Landolt's plan, or, where the patients were bed-ridden, with Schweigger's hand perimeter. The test objects (white and colored) were circular, one and one-half centimetres in diameter, set upon a dead black background, and fastened to long black handles. Usually, three methods were employed, namely:

(1) The test object was moved from without inward, and the point noted where it was recognized in each meridian.

(2) The test object was moved from within outward, and the point noted in each meridian where it disappeared.

(3) The test object was moved from without inward along each meridian until it was recognized; then it was moved from this spot outward until it disappeared, and the point noted in each meridian midway between the point at which it was originally recognized and the point at which it disappeared. Thus, it may have been recognized at 30 degrees and disappeared at 40 degrees; 35 degrees would be the point marked.

In some cases all three examinations yielded practically the same result; in others the results varied con-

¹ Loc. cit.

² *Les Manifestations Oculaires de l'hystérie*, Paris, 1892.

³ *Ueber Sehstörungen bei Functionellen Nervenleiden*, Leipzig, 1892.

⁴ *Beiträge zur Augenheilkunde*, XI. Heft., 1893, p. 49.

⁵ *Über Gesichtsfeld-Ermüdung und deren Beziehung zur concentrischen Gesichtsfeldeinschränkung bei Erkrankungen des Centralnervensystems*, Leipzig, 1893.

siderably. The diagrams which accompany this paper are all drawn according to the first method, many of them, however, being the results of numerous examinations, and, as has just been stated, some of them the result of a nearly uniform map with all three methods of testing. In recording the field of white, the patient was always told that the test object was white, and was asked to indicate the moment its movement, when entering into the periphery of the visual field, was perceived; thus, the field for white becomes equivalent to the field for form. It is important, as Frankl-Hochwart and Topolanski insist, in examinations of this character that the exact method which has been pursued should be stated; otherwise there can be no true comparison of diagrams from different observers. Even and perfect illumination of the perimeter, steady observation of the fixation point by the observed eye, and, as far as possible, removal of all objects from the immediate vicinity which could distract attention, were secured in each instance. In short, the rules laid down by Wilbrand received consideration.

A large element of uncertainty enters into the taking of a field of vision, especially when the subject is a hysteric patient, and we are keenly alive to the readiness with which such patients accept suggestion, to the influences of refractive error, of accommodative tire and fatigue of the retina, but think, none the less, that with the precautions that were taken, and with due allowance for factors that cannot be set aside, these diagrams are reasonably correct and represent the actual limits of the fields for white and colors as they existed at the time of examination.¹

Except incidentally, we have not included in these examinations special attention to the displacement type

¹ It may be stated that in some of the cases independent fields of vision were mapped by Dr. de Schweinitz's assistant, Dr. Bruner, and compared with the original fields. While in no instance was the map exactly similar, the main effect was always the same, and where previously reversal in the sequence of the colors had been found, it was again found on the second examination.

of the visual field, or that type which was originally described with anæsthesia of the retina. Those interested may consult Transactions of the Heidelberg Congress for 1887; Archives of Ophthalmology, Vol. XII, p. 428; and Vol. XXII, Nr. 2, p. 231.

As a type of normal visual field, to be compared with the maps illustrating the cases, we have assumed that Figure 1 fairly represents the physiological limits of the field for form and colors. The characterization of the form field by a continuous line and of the color fields by broken lines, as here represented, has been followed in the other diagrams.

The following seven cases are classified together, chiefly because they are examples of one or other of the varieties of anæsthesia which commonly occur in hysterical states.

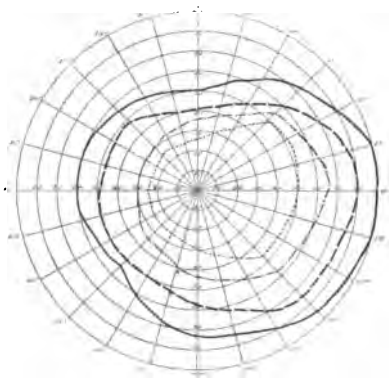


FIG. I.

Diagram of the normal field of vision of the right eye for blue, red and green. The outer continuous line indicates the limit of the form field; the broken lines the limits of the color fields.

CASE I.—Hysterical unilateral anæsthesia; binasal hemianopsia; reversal of the color fields.

L. C.; servant; age eighteen; single; slight, intelligent girl; has at various times in the last year consulted Dr. J. K. Mitchell for trifling nervous symptoms and a rather troublesome dyspepsia. She had frequent vomiting for a time, and at one period was thought to have a gastric ulcer, but she rapidly improved on milk diet and had for some

months been in fair health, when in May, 1892, she returned to complain that her eyes gave her trouble; she stated that she had been operated upon for strabismus as a child. Her eyes smarted whenever she was in a strong light, and as the glasses she was using were evidently of little service, she was referred to the service of the Polyclinic Hospital for an examination.

Dr. de Schweinitz observed that the conjunctiva was insensitive on the left side, and Dr. Mitchell found, on studying the general sensibility, that there was complete left-sided dysæsthesia, including the ocular conjunctiva, the leg, arm, chest and face. She could not distinguish the head from the point of a pin beyond recognizing it as a touch, and even could not perceive a light touch. A deep prick was felt as slight pain, but presented the characteristic hysterical symptom of not bleeding. If not deep it was only recognized as a touch. Two points were readily separated at normal distances on the hand and face, if somewhat firmly applied to the skin. On the right side, though sensation was imperfect, there was no marked loss of pain sense. Heat and cold were tolerably well perceived on both sides, if the difference between them was considerable.

Examination of the Eyes.—The central vision was normal after the correction of a slight astigmatism, and there was no abnormality in the fundus oculi on either side. Pupillary reflexes normal.

The field of vision of the right eye consists of a small patch of preserved vision upon the temporal side twenty degrees in width. Practically, there is absence of the nasal half of the field, although the fixing point is not cut exactly by the dividing line, which passes five degrees in advance of it on the horizontal meridian. There is no field for colors, and there is normal color sense only at the fixing point.

In the left eye the field of vision for form is a small patch twenty-five degrees in width upon the temporal side. There is entire absence of the nasal half of the field, except on the horizontal meridian, where the dividing line passes five degrees in advance of the fixing point. The fields for colors have the general appearance of that for form, except the red field, which, on the horizontal meridian at the temporal side, is fifteen degrees larger than the form field. The field for green is the same size as the blue and form fields, except on the horizontal meridian, where it is eight degrees smaller.

The fields in this case have the general characters of binasal hemianopsia, with some irregularity of the dividing line.

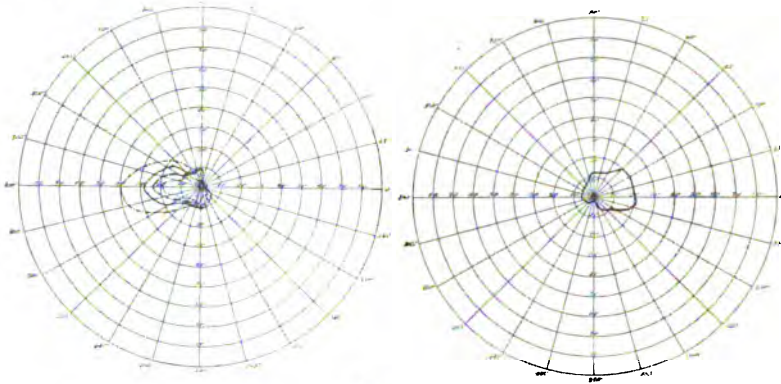


FIG. II.

Diagrams of the fields of vision of Case I. Irregular binasal hemianopsia; partial reversal in the color fields of the left eye; color perception only at the fixing point in the right eye.

It is certainly very remarkable that this case should present such decided hysterical symptoms in the fields of vision and yet have so few general hysterical characters. But for the accident, indeed, of examining the eyes for correction, the difficulties of sensation would never have been noted.

CASE II.—Hysterical disseminated hyperæsthesia and anæsthesia; normal form fields; partial reversal of the color fields, that for red being greatest in extent.

C.; female; native of America; age seventeen; single; private patient of Dr. S. W. Mitchell. The patient, together with some physical failure, probably due partly to perverted sexual emotions and to (doubtful) masturbation, presented an extraordinary picture of moral degeneration. Her school life was necessarily closed abruptly by the theft of money from a companion's trunk, for the purpose, she said, of procuring a cause for worry. Her parents are wealthy, and the money was of no moment to her. She did, in fact, burn it. She had a devoted woman friend, whom she called her "lover," and "wished to marry," and they exchanged

ardent love-letters and more ardent embraces. Her general health, while less good than formerly, was still fair, and her functions tolerably well performed.

The conjunctivæ showed an impaired sensibility, and areas of anæsthesia, varying in size and situation, came and went upon the body and limbs. Upon one examination a number of these "islands" would be found, two inches or less in diameter, in shape irregular circles or ovals. Another day there would be fewer spots of lost sensibility, and in different locations. Sometimes they were absolutely analgesic, at other times they displayed only an impaired touch sense.

Examination of the Eyes.—Central vision normal, with the correction of a compound hypermetropic astigmatism, as follows:

O. D. $+ 75^{\circ}$ axis $105\frac{1}{2}$.

O. S. $+ 25^{\circ} + 50^{\circ}$ axis $75\frac{1}{2}$.

Amplitude of accommodation, with correcting lenses, normal; esophoria, $2\frac{1}{2}$ degrees; double epiphoria from stricture of the lachrymo-nasal ducts.

In each eye the optic disc is oval, of good color, the fundus normal in appearance, and the vessels carrying normally tinted blood. Both conjunctivæ are slightly insensitive.

The field of vision of the right eye for form is entirely

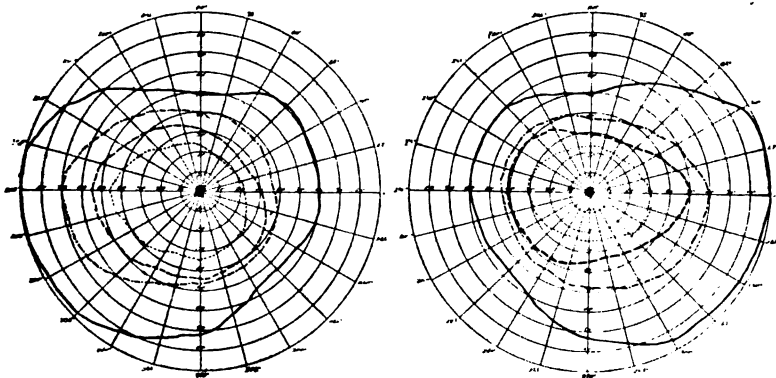


FIG. III.

Diagrams of fields of vision of Case II, showing normal form field and reversal of the red and blue lines, the red field being largest in extent.

normal. Of the color fields, the red is greatest in extent and about normal, the blue next in order and contracted. The green field, considerably contracted, occupies its usual position in the sequence of the colors. In the left eye the form field is normal. The red field is the largest of the color fields and greater in extent than it should be. The blue comes next, and is distinctly contracted. The green field is in its normal position, and is somewhat contracted, although not so greatly as upon the opposite side.

CASE III. — Hystero-catalepsy; disseminated anæsthesia; great contraction of form and color fields, with reversal of the blue and red lines, the red field largest in extent, and in some meridians exceeding the width of the form field.

W. R.; female; aged twenty; born in America; private patient of Dr. Weir Mitchell.

This patient, in March, 1892, when apparently in the best of health, fell suddenly into a short fainting fit. On returning to consciousness she sobbed violently for some hours. This attack was followed by others, with contraction of the left side of the body, spasmodic movements, complete loss of consciousness and tumultuous heart. Sudden recovery was usual, and was followed by severe headache and pain in the chest. The later attacks were not so severe as the first. In the earlier ones the movement was confined to one side, but afterward affected both. Return to consciousness after these attacks was instantaneous, like waking from sleep, and she complained usually of numbness and soreness of the limbs which had been contracted during the attack.

April 13th, soon after the first attack, she fell into a cataleptic state while in a dentist's chair. She had a second attack on the 15th, and one on the 23d, which was a long cataleptic condition lasting for twenty minutes. Later ones have been less violent and of less duration.

On examination, the patient was found to be a well-made, ruddy, strong-looking girl, with no signs of disease, and she confessed upon close questioning that she thought frequently the attacks were precipitated by any cause which irritated her; for instance, her family's denying her some small pleasure which she desired. Examination of sensation revealed a curious condition over the whole body. Sensation was impaired to touch,

to pain and to temperature, but we were distinctly impressed with the idea that there was an element of dissimulation in the difficulty of distinction between heat and cold. While all sensibility was thus impaired, the whole surface of the body was islanded with spots in which sensibility was a little better. There were also islands in which anæsthesia was complete.

It was possible to make only two examinations, as the patient did not remain long under treatment, being here upon a visit on her way to Europe. But on the second examination the areas of anæsthesia and sensibility were quite different from the first examination. There was no tenderness of the spine. The knee and ankle-jerks were somewhat excessive. The heart was a little fast and was easily excited, with a slight blowing murmur heard at the base.

Examination of the Eyes.—Central vision normal after the correction of a myopia of 3 D.; and a corneal astigmatism of 2 D.; amplitude of accommodation 10 D.; esophoria 1 degree; right hyperphoria $\frac{1}{2}$ degree. In each eye a vertically oval optic disc of good color and the general fundus in healthy condition; pupillary reflexes normal.

The fields of vision presented marked concentric contraction, with reversal of the blue and red lines, the red being largest in extent, and in some meridians exceeding in limits that of the form field. The green field occupied its natural position in the sequence of the colors, but was greatly contracted.

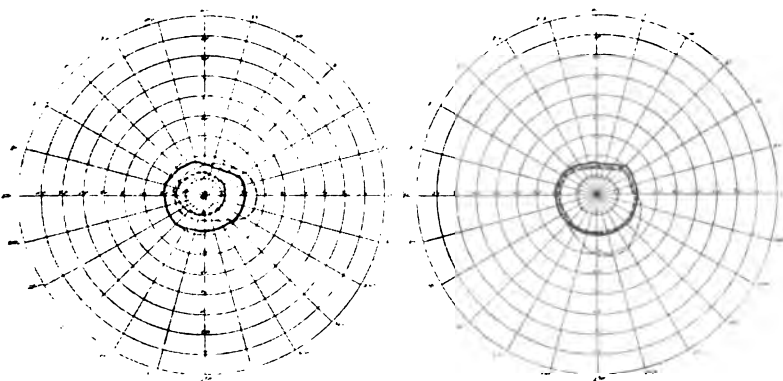


FIG. IV.

Diagrams of the fields of vision of Case III. Concentric contraction; reversal of the red and blue lines, the red field exceeding in some meridians the dimensions of the form field.

The alterations of sensation in this case were curious, and the distribution of anæsthesia and dysæsthesia in small areas over the body surface varying in situation from day to day was very unusual, and, with the cataleptic conditions, sufficiently marks the hysterical character of the trouble.

A like variability in position of areas of altered sensibility was found in the case of K. W. (Case XI.), in whom anæsthesia and hyperæsthesia were found to exchange places with one another from day to day.

CASE IV. — Hysterical local anæsthesia; possible spinal injury. Reversal of the color fields, red and blue and, partially, green and blue.

M. D.; aged twenty-four; a native of New Jersey; hospital patient of Dr. W. Sinkler. In 1889 had convulsions and was unconscious for two days. Dr. C. B. Penrose removed the right ovary in May, 1889. After this she was better until September, when convulsions reappeared. In October the left ovary was removed. In September, 1890, she fell, striking her back. She was in bed for three months, and is said to have had spinal meningitis. Dr. Joseph Price operated for pelvic adhesions. On rising found right leg weak, and could not lift the foot. Nervous prostration followed, with the result of entire loss of power in the right leg.

There is pain and tenderness in the spine, the back gives out on slight exertion, and there is absolute anæsthesia of the whole right thigh. The heart, etc., are normal, bowels constipated, appetite good. Menses appeared every two weeks until the ovaries were removed. The right leg is feeble and presents the anæsthesia before mentioned; no ataxia; K. J. normal; no clonus.

Examination of the Eyes.—Vision in each eye $\frac{15}{LXX}$; a considerable degree of compound hypermetropic astigmatism; eye-grounds normal.

In the right eye the form field is about normal. The red field is largest in extent, except at the nasal horizontal meridian, where it is exceeded in extent by the green and coincides with the blue. The blue field is exceeded in extent by the green at the meridian named and in the upper and inner quadrant; elsewhere it exceeds the green field in extent. In the left eye the form field is normal; the red field is everywhere the greatest

in extent and about normal in size. The blue field, considerably contracted, comes next in order, followed by the green field, which, at the horizontal meridian of the temporal side coincides with the blue line.

A third diagram of the field of vision is appended, taken somewhat later than the other two, and showing the same peculiarities even more marked, reversal of the red and blue lines being complete.

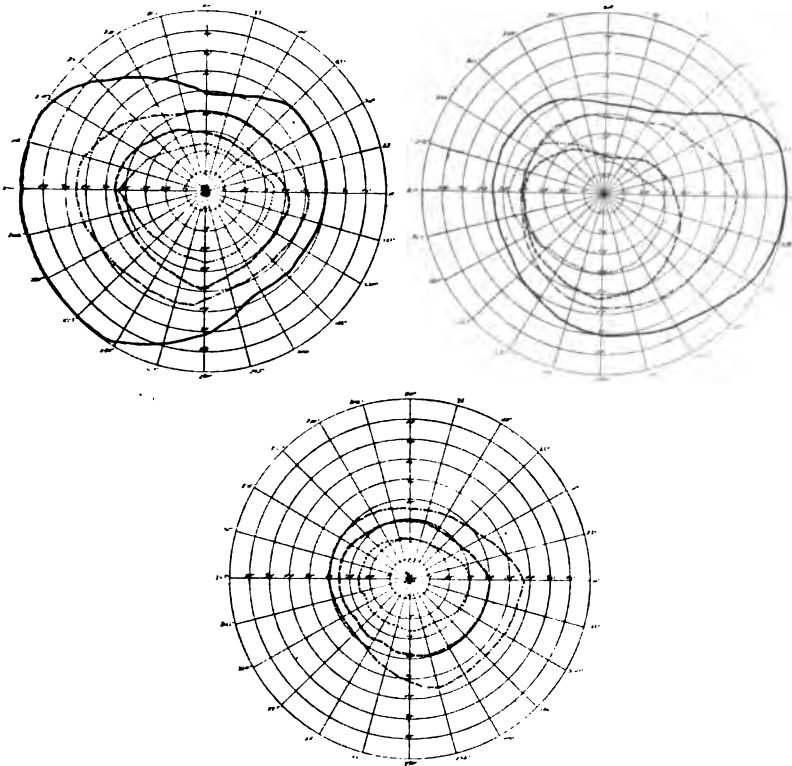


FIG. V.

Diagrams of the fields of vision of Case IV, showing practically normal form field, complete reversal of the blue and red lines, and irregular partial reversal of the green and blue lines.

CASE V.—Universal hysterical anæsthesia; great contraction of visual fields.

A. C.; female; married; aged 26, housekeeper; a patient of Dr. Morris J. Lewis, was admitted to the In-

firmly April 14, 1893. Her previous history was as follows:

She was married at 18, and had previously had good health, with the exception that menstruation had always been painful. In eight years she had had five children, of whom three are living, and two died within the first fortnight.

Following the loss of the last child but one, sixteen months since, she began to suffer with constant indigestion, eructations of gas, poor sleep and increasing vague fear, which lately has developed into an acute alarm lest she should die at any moment. For weeks before admission she had taken no solid food, and very little of any kind. She has sometimes stiffness of the jaw, and cannot open her mouth. For a week past she has been subject to attacks of choking, three or four times daily; has constant epigastric pain, and has had jaundice on several occasions.

Her weight has diminished by twenty pounds in the last year and a half. At the time of admission all these difficulties were aggravated by a melancholy and depressed state of mind, consequent upon her recent desertion by her husband. Her tongue was red and glazed and denuded in patches, and she suffered a great deal from leucorrhœa and bearing-down pains. On examination, no trouble was found in the lungs, but the second sound of the heart was markedly accentuated.

She improved, however, very rapidly, both mentally and physically, and in a few days was eating ravenously, although still suffering from abdominal discomfort. After one month in the hospital some delusions still remained, such as that people were talking about her.

In the middle of June, when the patient was, physically, almost well, the discovery was made, upon her own complaint, that sensation was disturbed over the whole surface. On examination it was found that she was almost without pain-sense anywhere in the body. Even the tongue shared in this condition of loss of sensibility, so that she could not distinguish solutions of sugar or salt, or vinegar or pepper. The patient says that her attention was called to it by dullness of vision, so decided that she could look directly at the sun without perceiving anything more than a slight luminous spot.

An examination of her sensibility on June 14, 1893,

revealed complete anæsthesia to touch and pain, with the following exceptions: a long narrow area, beginning over the middle of the biceps muscle on the right arm, extended down the front of the right arm, about two inches wide, to the middle of the fore-arm, in which pain sensation was slight. At the tip of the right thumb, and at the tip of the right middle finger, pain sensation was fairly acute. On the left arm a similar condition existed, except that the stripe of better perception was narrower, and was interrupted at the elbow by an area of complete insensibility. On the back of the left hand, the thumb from the second joint to the tip, and all four fingers from the second joint to the tip, preserved some pain and touch sense. On the right side, the tip of the middle finger and the tip of the thumb were somewhat sensitive. On the trunk there were two areas—one some two or three inches long in the middle of the right hypochondrium; one in the left epigastric region, extending as high as the sixth or seventh interspace, and only an inch or so wide—which were sensitive. Immediately below the right clavicle was another small spot where touch sense was preserved imperfectly. A line up both sides of the neck, from the clavicles to the ears, extending on to the cheeks and forward under the eyes and over the forehead was also sensitive. On the back there was a spot in the cervical spine, another over the mid-dorsal region, and a third over the lower lumbar region, where sensation was preserved imperfectly; and in the middle of the sole of each foot was a small spot where pain was perceived.

This very curious distribution of hysterical anæsthesia lasted only a few days, and, at the end of a week, sensation was rapidly returning without any special treatment.

Examination of the Eyes.—Central vision normal; slight deficiency in the amplitude of accommodation; no anomalies of the external ocular muscles. Small optic discs, moderately hyperæmic, with edges slightly veiled; pupillary reflexes normal.

The fields of vision for form are greatly contracted, those for colors being proportionately diminished in extent; colors are correctly appreciated, and their fields nowhere exceed 10 degrees in extent to either side of the fixing point. Even in this limited area there appeared to be reversal of the red and blue lines, but this was not determined with certainty.

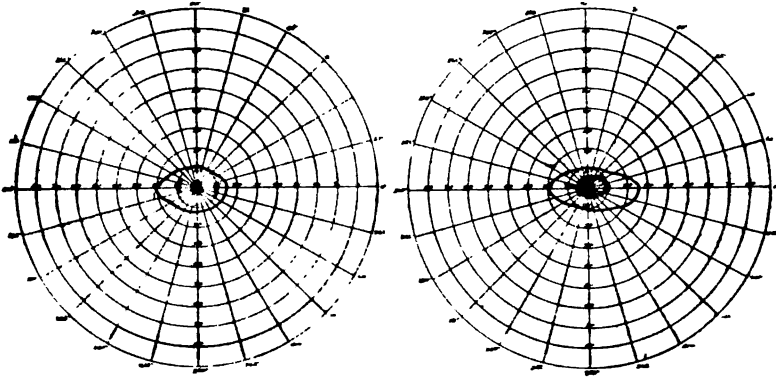


FIG. VI.

Diagrams of the fields of vision of Case V, showing marked concentric contraction.

CASE VI.—Hysterical ptosis and hemianæsthesia; irregular and varying reversal of the color fields.

S. B.; aged twenty-one; female; single; a native of America; a hospital patient of Dr. Wharton Sinkler's. In 1889 she fell from a horse and has never been well since. In July of 1890, a loss of power on the left side came on gradually and lasted two weeks. She is complaining of a tight, girdle sensation around the waist, pain across the back, a bursting feeling over the right eye, and lack of sensation upon the left side. There is no headache; she is very nervous and sleeps badly; the bowels are regular; the appetite poor. There is complete left anæsthesia with failure to appreciate the prick of a pin over the entire left side, but no demonstrable palsy.

Twenty and thirty times a day, and sometimes oftener, there are attacks of complete ptosis in the left eye, lasting from one to fifteen minutes, during which time the lid is spasmodically closed, and the eyeball beneath it rolled upward. The attack begins with a curious tremor—or, rather, quiver—of the upper eyelid, which then spasmodically shuts over the ball, and the condition described results.

Examination of Eyes.—In each eye there is an oval optic disc, a slight crescent at the outer side, some superficial retinal haze, but, on the whole, fairly healthy eye-grounds. The vision is normal in each eye; the accommodation equals 8 diopters: esophoria, 4 degrees for the distant point.

On March 7, 1891, while the hysterical symptoms were in their highest development, the following fields were obtained: the white field is the greatest in extent, except down and in where it is slightly exceeded in area by the blue, yellow and green fields, and up and out where, on the meridian of 45° , it is slightly exceeded in extent by the yellow field. The blue field is exceeded in limit by the red and yellow fields, which for the most part run upon the same line, except in the lower and inner quadrant, and directly below where the blue field is greater in extent; then follows the red field, part of the time coinciding with the yellow and part of the time passing in advance of it. In this area the red line passes to the inner side of the blue and the yellow lines, part of the time coinciding with the green until it again becomes the greatest in extent, with the exception of the yellow, with which it coincides. The green field is the smallest in extent of all of the colors, in this particular occupying its natural position in the sequence of the colors, except down and out in the meridian of 330° , where it coincides with the blue field; directly down, where it coincides with the red field; and down and in, where for a short distance it lies between red and blue, and for a still shorter distance becomes the greatest in extent of all the colors, being even in advance of the line of the white field. This is in the meridian of 225° . The left eye presents similar conditions, as may be seen by consulting the diagram.

It will be noted that in addition to this partial reversal in the order of the colors, that the extent of all of the color fields is greatly in excess of normal, and, as has already been noted, is in some instances in excess of the white field.

On May 28, 1891, there had been some improvement in the woman's general condition, although not very marked, the ptosis, etc., continuing. A field then taken shows the changes similar to those figured.

In July 29, 1891, when the patient was practically restored to health, the anæsthesia having disappeared and the woman having gotten down to honest work as a trained nurse, another color field was taken; which is practically normal in all respects, both in extent and sequence of colors.

The sequence of the colors in this case has been described at some length for the purpose of showing what irregular and contradictory results may be obtained

with hysterical patients in such examinations. Practically, any sequence could be maintained during the hysterical period; any color could be made to yield the field of greatest extent, provided it was the first color used in the examination. So, also, the patient was open to suggestions, and the colors could be made to follow in almost any order, and the lines made to cross or recross in almost any manner. It is, further, an interesting example of the restoration of the normal visual field after the disappearance of the hysteria and its accompanying anæsthesia.

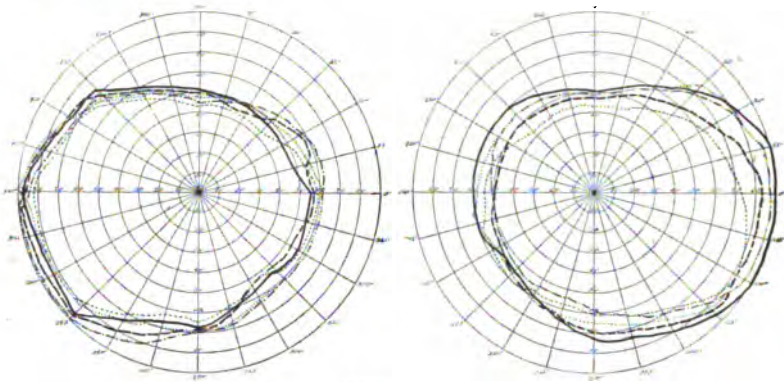


FIG. VII.

Diagrams of the fields of vision of Case VI. Varying and irregular reversal of the color fields.

CASE VII.—Hysterical hallucinations and slight anæsthesia; normal form and color fields.

L. M.; female; single; aged thirty-three. This patient has a neurotic family history, and has been from childhood very nervous. She broke down from overstudy at the age of sixteen, and had an intestinal trouble from which she never entirely recovered. In 1875 she had her first hysterical attack, which was renewed in 1888, and followed by a third in the spring of 1892, just before she came under the care of Dr. Weir Mitchell. All of these attacks presented somewhat similar features; rigidity in the neck and legs, with convulsive movements of the toes, lasting for an hour or more. In the third attack she was delirious.

She is fantastically peculiar about what she eats, and

has not, since 1875, eaten ordinary food at all, although her appetite is enormous. About one-half of the time, beginning a few days before her menstrual periods and lasting for about ten days afterward, she suffers from indigestion in various forms, and is extremely constipated. During this time the nervous symptoms are much worse.

In the winter of 1892 she began occasionally to see flashes of light, and soon she had visions of coils of spotted snakes, and at last distorted faces came frequently before her. One peculiar symptom, of which she made great complaint, was that she could not restrain her mind from carrying on within herself a sort of double conversation, in which she asked and answered questions—often absurd ones. It usually turned on the person she had last seen, or on the next person she expected to see, or on any triviality of the day's doings.

She suffered from a slight anæsthesia of the skin of the face and from a feeling of numbness, most marked on the right side of the head. She was very courageous and truthful, and most persistent in carrying out any line of treatment laid down for her by which she hoped to be benefited. She finally made a good recovery.

Examination of the Eyes.—Central vision and amplitude of accommodation normal; orthophoria; slight corneal astigmatism, in the right eye, .75 D. axis 135; in the left eye, .37 D. axis 90; oval optic discs, with excessive capillarity of their surfaces; no other lesion in the fundus oculi. The fields of vision in this case are entirely normal, both for form and for color.

Although there was anæsthesia in this case, it was of minor character. This should be noted in connection with the fact that there was no disturbance in the field of vision and in the normal appreciation of the colors.

The following three cases are classified together as examples of hysterical hyperæsthesia.

CASE VIII.—Hysterical hyperæsthesia; normal form fields; practically normal color fields; very slight excess of the normal extent of the color lines on the temporal side.

D. L.; female; of Hebrew parentage; aged twenty-seven. Private patient of Dr. Weir Mitchell.

For more than four years the patient was under treatment for dysmenorrhœa, prolapse of the left ovary and general nervousness. Her cervix uteri has been dilated and dilated again. She has had various neuralgias and pseudo-paresis of one limb and another, tender spine, tender ovaries, headache, indigestion, rectal and vesical tenesmus, vaginismus, and difficulties in the use of her eyes have followed in quick succession, new symptoms constantly appearing as interest in the old ones slackened. Her physician had long suspected masturbation to be at the bottom of the pelvic neuroses, but was unable to prove it, until recently a confession was extracted from her of the truth of this suspicion. An anxious and sympathetic family witnessed the hysterical panorama with ever fresh compassion and ready services.

This lady belongs to a family, of whom four have been under Dr. Weir Mitchell's care in the last three years for neurotic troubles, including a niece of the patient, a sister and a first cousin.

At present she is of fair general appearance, in good flesh and of wholesome coloring.

Her most remarkable and interesting symptom is the muscular hyperæsthesia from which she suffers. Pressure over a bone, wrist, tibia, rib or elsewhere seems to cause no pain, but touch over a muscle ever so lightly and she shrieks and "flops" in bed, with hurried or sighing respiration and complaint of agonizing pain. This condition is worse upon the left side, but even there not absolutely universal. There are islands of less excessive sensitiveness, but these vary in position from day to day. There seems some slight loss of sensibility to touch with a needle point in places.

There is ovarian tenderness, especially on the left side (the situation of the prolapsed ovary). There is a similar excessive spinal tenderness most marked in the upper dorsal region; and, as an exception to the rule of pressure over superficial bony surfaces producing no pain, over the sacrum. K. J. is excessive,—doubled. No ankle-clonus. The heart and lungs are normal, nor is there any evidence whatever of organic disease.

Examination of the Eyes.—Both eyes highly myopic, but no lesions in the fundus oculi other than those common with high myopia. Owing to the exceeding nervousness of this patient, it was impossible to make an extensive examination of the color fields, and this was

limited to four meridians in the right eye. After a number of trials the following results were obtained:

The field of vision is entirely normal in extent, so far as form is concerned; colors are appreciated in their natural order, and there is no change in the extent of the color fields, except a slight increase of the normal limits on the temporal side. This slight change, however, can scarcely be looked upon as of any importance, especially as a subsequent examination of the patient when she was in much better physical condition, by Dr. William Dennett, of New York, showed that it was impossible to get accurate results, although he found, as we had done, that there was no lessening of any of the fields. Further than this, however, the answers were contradictory. He obtained entirely different results in almost any part of the field with the same or with different colors.

This patient, after long and careful treatment of her hysteric difficulties, made an excellent recovery and is now perfectly well.

CASE IX.—Hysterical disseminated hyperæsthesia; normal form fields; partial coincidence of the red and blue lines; contracted green fields.

H. S.; male; a Russian; aged sixteen; was sent to Dr. J. K. Mitchell by Dr. M. V. Ball in May, 1893, with the following history: He had been in this country a little more than a year. His general health and appearance were fair, and the history of his present difficulty was—he had never been free from pain in the feet and lower legs since an inflammation of the kidneys following scarlet fever when he was seven years old. The pain had located itself especially in the right popliteal space. This, however, had never been severe enough to greatly disturb or annoy him.

Eighteen months before examination, in the latter half of 1891, while in Russia, he began to have pain throughout the whole right side of his chest. This seemed to extend around the ribs into the back, and affected also the feet and knees in a general way. These regions, somewhat vaguely described by the patient as "painful," were also excessively tender to the touch, and his statement is that now he suffers constant pain in the chest on both sides. It is made much worse by pressure or movement. There is sharp pain in

the hips. The pains, while constant, have yet degrees, and are at times more severe than at others, often spontaneously becoming of extreme violence. He has also cramping pains in the fingers. All these areas of pain are made worse by fright or excitement.

Upon examination it was found that the chest, especially over the sternum, was so sensitive to touch that the lightest pressure of a finger appeared to give exquisite pain. The same was true of the arms and forearms; of the face (on both sides); of the tibial region in both legs, though the left was somewhat more hyperæsthetic, especially just above the ankle. This tenderness was more marked in the fore-arm and hand than on the upper arm, and he said that a touch gave a sharp stabbing pain. The nape of the neck was also excessively sensitive to pressure. Common sensation was perfect throughout the body. The head and point of a pin were perfectly distinguished everywhere, but a mere touch with the point was said to cause acute pain.

All these symptoms are worse in bad weather, especially when cold or rainy. Heat does not affect them.

The patient's knee-jerk is normal, and his station good.

Examination of the Eyes.—Direct vision normal; slight haze in each retina; otherwise no changes in the fundus oculi. A moderate degree of hypermetropic astigmatism. The form field in each eye is normal; there is distinct contraction of the green field, most marked upon the right side, and partial coinciding of the red and blue lines, but no reversal.

In this curious case of general hyperæsthesia, there is undoubtedly a very large element of hysteria; how large it is difficult to judge. But the patient's pleasure in detailing his symptoms, the dramatic start and expression with which he received a finger touch, rendered us very suspicious of the whole history. It may be summed up as an unusual form of hysterical hyperæsthesia. The lad is unusually bright and intelligent, and, although only a few months in this country speaks excellent English, and is a hard student, preparing for college.

CASE X.—Hysterical sciatica and hyperæsthesia of the left side; form fields normal; slight contraction of the color fields on the right side.

Mrs. R. D., of Mobile, Ala.; private patient of Dr. S. Weir Mitchell; aged thirty years; of Jewish parentage; was married early, and divorced after two years from a brutal husband, who has since become insane.

She has had one miscarriage, and has been treated for uterine troubles. She has masturbated since childhood; calmly discusses the habit, and says that she can refrain for six months, but that then it takes possession of her and she indulges herself freely for two or three weeks.

She has a highly developed drug habit. For three years past she has taken 60 grains of sulphonal at night, and McMunn's Elixir at every period, not because she suffered pain, but because she was uneasy and uncomfortable, and was relieved by the opium.

Her complaint is of "agonizing pain" in the left hip and leg, extending into the great toe; excessive weakness, headache and sleeplessness. The trouble began four years ago with an attack of "pleurisy," or, more probably, of inter-costal neuralgia. After a few days of slight pain in the leg at this time, she found herself one night out of bed in an agony of pain, which required morphia. The pain has persisted in the whole leg and hip ever since, with exacerbations. It has not, however, been sufficiently great to prevent her traveling over most of Europe and a great part of this continent, where, in the intervals of treatment at sanitariums and health-resorts, she enjoyed herself by securing a collection of extraordinarily various opinions from physicians of all sorts and sects.

She is quite stout but anæmic, and has the countenance of a confirmed hysteric. She shrieks if the left leg be touched ever so lightly, and, indeed, will hardly allow the right one to be handled; exclaims if the bed is approached from the left side, and says that she cannot use her left arm, because it gives her pain in the great toe on that side. At times she will not allow even the bed clothes to touch the leg; yet she can and does walk about the room without the slightest pain or trouble. She has no paralysis, and no enlarged glands or other evidence of specific disease. There is slight swelling of the left leg about the lower part. She is highly emotional; talks cheerfully; has an excellent appetite and a great desire for medicine. An examination of the abdomen and chest reveals nothing abnormal.

Examination of the Eyes.—There are no alterations of importance in the fundus oculi. With the exception of

slight contraction of the color fields there is no change; the contraction is slightly greater upon the right side than upon the left; in fact, the left field is not far from normal.

This is distinctly a case of hysterical imitation of sciatica, founded on a real original nerve-pain.

The following four cases are classified together under the general term of major hysteria, because they represent the highest types of hysterical manifestations.

CASE XI.—Major hysteria; hysterical rapid breathing; considerable contraction of the visual fields, but no reversal.

The following remarkable case was reported in full by Dr. S. Weir Mitchell in a lecture on hysteria, published in the *American Journal of the Medical Sciences*, in March, 1893. The notes, which are very full and cover a period of ten years, we give only in abstract, as the case is easily accessible.

K. W.; female; single; aged twenty-eight. This patient's first hysterical trouble was an affection of the knee-joint, which was treated at the Infirmary for Nervous Diseases and relieved, although it afterwards relapsed. Her family assert that after this, from July to October, 1889, a period of sixty-four days, she remained in a trance, brought on by the news of the death of her father, and it was said that during this time she took neither food nor drink, except that for the last four weeks she received daily a small quantity of water by the mouth. Strange to say, although she ate nothing, she had large passages from the bowels, produced by an enema given once a week!

On her second admission to the Infirmary for Nervous Diseases, March, 1892, she was found to have a respiration of 120 to 150 a minute, very shallow, almost entirely upper-costal in its character and perfectly regular. Her pulse at the same time was about 100 a minute. When in bed, she could move the left leg perfectly well, even against resistance; but she dragged the left foot when walking. Station good; knee-jerk increased; no ankle clonus. The tactile sense was hard to determine on account of the difficulty of truthful statement by the

patient. The left side was more sensitive to pain than the right.

A curious growth on the anterior aspect of the left leg was illustrated in Dr. Mitchell's paper in the *American Journal*, and reported on by Prof. Duhring. The case did not do well, and was finally discharged from the hospital, practically unimproved.

Examination of the Eyes.—Conjunctivæ insensitive; pupils normal in reaction; good fusion power; no lesion in the fundus oculi.

In the right eye the form field is normal in extent; there is concentric contraction of the color fields, but they occupy their normal position. In the left eye the same is true, except that there is very considerable contraction of the form field, and that in the horizontal meridian on the temporal side the red and blue lines coincide.

A chart of the field of vision (colors), taken during a semi-hypnotic condition, showed no material difference from the others, save that the fields were more contracted.¹

CASE XII.—Major hysteria; convulsions; sterno-cleido-mastoid and splenius spasm; irregular contraction of the visual fields, but no reversal.

Girl; aged seventeen; American by birth; private patient of Dr. J. K. Mitchell.

The family history is a suspicious one. The patient's mother was of a tuberculous race, but died in child-bed. She, at one time, used opium to excess. A sister has chlorosis; two aunts are "nervous." The girl's own health has not been first-rate. An attack of diphtheria left her extremely susceptible to throat inflammation from trifling causes. She is very intelligent, quick, unusually well-read and observant. Her temper is at times very violent.

She returned to school in the fall of 1891, after a summer in the country, in excellent health, and undertook work as a pupil teacher. She found it trying and gave way occasionally to fits of uncontrolled temper. Late in November, she began to suffer with pain in the supra-orbital region, with a spot of particularly intense pain and tenderness on the side of the nose, the neuralgia occasionally darting backward toward the ear and from the

¹ The diagrams of the visual fields may be seen in Dr. Weir Mitchell's original paper.

ear down the neck. This was confined to the left side. After this had lasted, with short intermissions, for two or three weeks, the darting pains began to be accompanied with strong twitching of the muscles of the left neck and shoulder.

When first seen in December, these spasms were occurring several times daily and lasting from a few minutes to hours each time. The head was jerked a little toward the left with each spasm, and the pain was described as intense. The pupils were unaffected during the attacks. The left sterno-cleido-mastoid and splenius both contracted, rotating the face toward the right, while the head jerked to the left. Sometimes the platysma seemed to share in the irritation.

Treatment was extremely unsuccessful, and the girl grew gradually worse, until it became necessary to put her to bed, which was done, and absolute rest was insisted upon. At first, for a time, she grew a little better, then the ache and the convulsive movements of the head returned, growing steadily more severe in spite of every effort and culminating, in January of 1892, in violent convulsions; these began with retraction of the head and went even to complete opisthotonos.

The convulsions were usually, but not always, preceded by extreme convergent strabismus. In the intervals the patient, while sometimes perfectly conscious and clear-headed, complained of loss of vision,—the pupils were widely dilated, almost entirely insensible to light and varied in their relative size, sometimes one being the larger and sometimes the other. During this whole period, which lasted about six weeks, the excessive pain was constant, and it finally became necessary to resort to large doses of morphia repeated throughout the day to keep the patient reasonably quiet. She grew somewhat better in March, but had one or two violent convulsive attacks, the last one with delirium, and in it she assaulted her nurses. Her family was worn out and the supply of nurses exhausted. Dr. Mitchell had the patient removed to the Infirmary for Nervous Diseases. She was carried down-stairs in a semi-conscious state, wrapped in a blanket, conveyed to the infirmary and put to bed, and from that day made a rapid and perfect recovery.

She was seen a year after leaving the Infirmary for a slight return of the aches at the base of the brain, but she had had no more twitchings with them.

Examination of the Eyes.—When first seen, the central vision was one-half of normal, the refractive error a moderate compound hypermetropic astigmatism and slight insufficiency of the external recti muscles; the eye-grounds were perfectly healthy.

The field for white is contracted above and to the temporal side in the right eye, and there is also contraction of the color fields, most marked for green, but in perfectly regular order; there is no crossing of the lines and no reversal. The color sense is perfect for all colors and all shades.

In the left eye the vision is two-thirds of normal; there is great contraction of both form and color fields, again in perfectly regular order. The depreciation of central vision was accounted for by the refractive error.

Somewhat later, at the height of the attack, when all the major symptoms were most pronounced, there was well-marked homonymous diplopia from partial paralysis of the left external rectus muscle; but no change in the ophthalmoscopic picture, save some distension of the lymph sheaths around the central vessels, and the central veins a little larger than normal. It was impossible to map a color field at this examination.

Still later, during the patient's stay in the infirmary, a number of fields of vision were mapped out, of which the following diagram is an example, showing considerable contraction of the form field, of the blue and red, and particularly of the green fields.

After the patient had recovered, the fields of vision were measured again and were perfectly normal in extent.

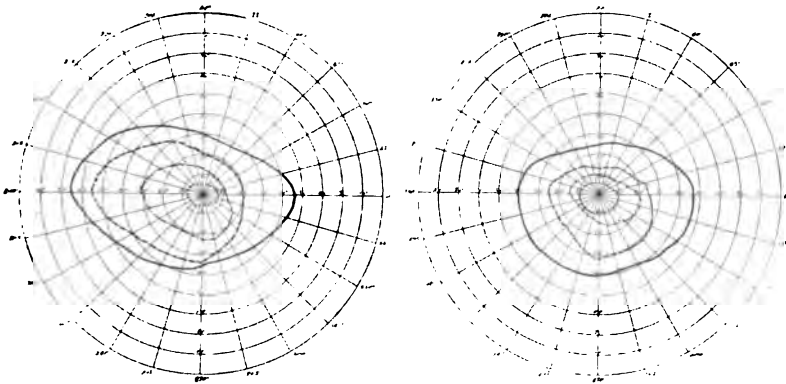


FIG. VIII.

Diagram of the fields of vision of Case XII, showing concentric contraction, but no reversal.

CASE XIII.—Hysterical anorexia; possible tuberculosis; moderate contraction of the visual fields, but no reversal.

V. B., a wretchedly thin and anæmic child of seventeen, was brought from Michigan to Dr. S. Weir Mitchell in the autumn of 1892. She had complete hysterical anorexia, and constantly complained of indigestion and abdominal pain. Her bowels were obstinately constipated. She was emaciated to an extraordinary degree, very sleepless, and the object of devoted attention from her doting parents, for whose benefit a continuous dramatic performance went on pretty nearly day and night. She may fairly be described as a highly neurasthenic patient, although a suspicion of the possibility of tubercular disease of the intestines cannot be denied.

Examination of the Eyes.—Central vision normal; oval optic discs of good color, but retinas slightly hazy; moderate hypermetropic astigmatism; no anomalies of the external ocular muscles, save slight esophoria; drooping of both upper lids, but hardly sufficient to justify the term ptosis; moderate contraction of the form fields, and some coincidence of the blue and red lines, but no reversal. The green field is proportionately more contracted than the others, especially upon the right side.

CASE XIV.—Hysterical dyspnœa; hypnotizable subject; general hysterical symptoms; slight contraction of color fields.

E. W.; aged twenty-one; unmarried. Patient of Dr. M. J. Lewis in the Dispensary of the Infirmary. The girl had never been in very good health, was subject to frequent gastric disturbances, especially a strong tendency to vomiting on small provocation.

For some months during her mother's last illness, in which she nursed her, there was a constant uterine flow. After this, in June, 1890, two years previous to her first visit to the hospital, she had become very much depressed and run down, and was for some months confined in her bed with profound depression and general nervousness, with hysterical attacks of laughing and crying. At the same time, she had a beginning of one of the present troubles, namely, stammering when excited. She had, too, attacks of fainting, sometimes three or four a day, but not of late so often as formerly; palpitation of the heart, poor appetite, frequent vomiting, probably intentional. She seems not ill-nourished, and

her color is fairly good; but she sleeps badly, and says that she cannot lie down, but must sleep sitting in her chair on account of the difficulty of breathing which she experiences when recumbent. Being made to lie down during the examination, in order to study this difficulty, her breathing was found to be somewhat increased in rapidity and very irregular while supine. She was not flushed or pale at this time; she had no pain; no heart-murmur was audible.

She had a slight œdema of the feet, and her menses occurred every second week. The patient proved to be readily hypnotizable, and could be thrown into a minor degree of the hypnotic state by mere suggestion. On a later occasion her blood was examined, and the number of corpuscles found to be 5,200,000 per cmm., and the hæmoglobin 90 per cent.

During the preparation for this examination, the patient suddenly began to wink very rapidly with both eyes. No notice was taken of this, and her finger was pricked to draw the blood. The moment that the needle touched her, she began to breathe rapidly and noisily; threw her head slowly backwards, closed the eyes, breathing more slowly, and thus remained unconscious for four or five minutes. She was let alone during that time, and presently came gradually to herself, but was very shaky and nervous. On a second pricking of the finger, she went off again rather more rapidly as the finger was stuck, and remained unconscious for about one minute. The patient was lost sight of, having left the dispensary because she objected to Dr. Lewis's recommendation that she should be removed from her family and surroundings and treated in a hospital.

Examination of the Eyes.—Ophthalmoscopic examination revealed nothing abnormal. The pupillary reactions were natural, and the excursion of the eyeballs good in all directions. The field of vision is normal for form, the color fields being slightly contracted, that for green being proportionately more contracted than the rest of the colors.

The following four cases are classified together chiefly because the most decided manifestation was local in its character.

CASE XV.—Hysterical, clonic laryngeal spasm; uncontracted form fields; color fields (red and blue) wider

than normal, with almost complete reversal of the red and blue lines.

A. C.; aged twenty-nine; female; single; book-keeper; Infirmary case. Family history negative; previous health good. Applied for treatment December 2d, 1892, stating she believed the wearing of a pessary for eleven months to have been the cause of the present trouble.

The patient is in a very nervous state; complains of "noises in the head" and "flutterings in the chest." There are choreoid twitchings of the body and of the eyelids. The larynx is in constant vertical movement, 140 times a minute. This stops during phonation, on deep breathing or upon being ordered to hold her breath. The muscles involved are the pharyngeal, palatal, laryngeal, digastric, and the muscles going to the hyoid. The omohyoids and the sterno-cleido-mastoid are not implicated. The sides of the neck are normal, there is no exophthalmos and no thyroid enlargement. The patient states that the movements do not cease during sleep. Speech is not affected. This rapid motion has continued for fourteen months and is said to be increasing.

The pupils are unsteady. The pulse is 100-120 per minute, increasing under excitement. There is no evidence of valvular lesion. The K. J. is normal. Miss C. has various hysterical symptoms, e. g., fancies she can see her eyes in the ceiling and of enlarged size. Sensibility is slightly lessened in the anus.

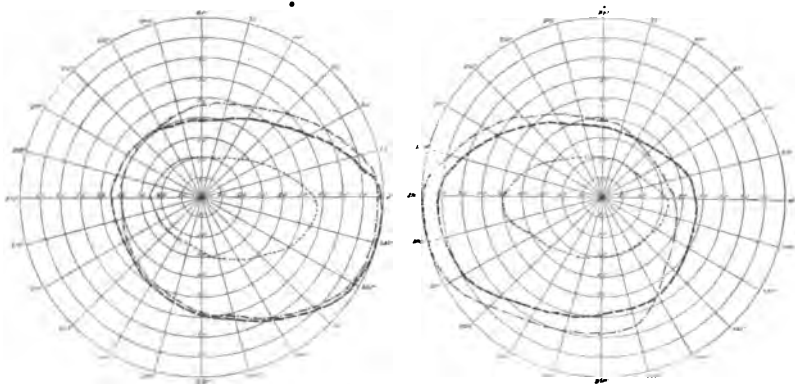


FIG. IX.

Diagrams of the fields of vision of Case XV, showing partial reversal of the red and blue lines and unusual extent of the red field.

Examination of the Eyes.—There are no lesions discoverable with the ophthalmoscope and no changes of importance in the external ocular muscles. The form field in each eye is normal; the color fields (red and blue) are wider in extent than natural, the red field being for the most part greater in extent; the green field, about natural in size, is in its normal position.

CASE XVI.—Hysterical contraction of the arm and legs; nearly normal form fields; practically normal color fields, with the exception of green, which was somewhat contracted on the left side; partial reversal of red and blue lines on the right side.

J. H.; aged thirty-seven; female; single. Private patient of Dr. J. K. Mitchell. A hard-worked Government clerk, in a responsible position, at the same time carried the burden of a large and poor family.

In 1891, coming suddenly out of a light room into a dark hall, she fell over a pile of books and bruised her shoulder. Little was thought of the accident at the time, and there was no atrophy of the shoulder muscles; but when, after several weeks, she still could not use her upper arm or raise it from her side, more attention was paid to it. It was found that although there was no wasting, there was complete loss of power for voluntary movement of the shoulder muscles. This continued in spite of every treatment, and soon the forearm began to bend and the fingers to draw into the palm. This contraction of the fingers continued, and they soon became closely adducted, with the thumb lying in the same plane as the fingers. The hand was a little flexed upon the wrist, and the palmar fascia, slightly contracted, made what we might term a cup-shaped hand. In the same way the forearm became more and more rigid at right angles to the upper arm, and the upper arm was held stiffly to the side, the forearm lying across the body at the waist, with the fingers pressing against the right side below the breast. With some exertion this contraction could be passively overcome, but the effort caused the patient slight pain at the elbow, and more pain if an attempt was made to raise the shoulder.

After some months she had progressive loss of voice, so that when Dr. J. K. Mitchell first saw her, in November, 1892, she could not speak above a faint whisper and went about with the arm in a sling, unable to get the sleeve of her dress on. In spite of every treatment the

condition remained unchanged for several months, and in February, 1893, a contraction of the legs occurred, at first affecting the adductor groups. Soon the thigh muscles contracted somewhat; the legs were bent upon the thighs at a right angle, and this contraction remained excessively strong, so that it was only by using an undue degree of violence that the legs could be separated from one another.

There was at no time loss of sensation in any part of the body. An effort was made to relieve the contraction of the arm by cutting some of the tendons, but, of course, they could not all be cut. This did no good, and the patient remains in this wretched condition, with very little prospect of improvement.

Examination of the Eyes.—Central vision and eye-grounds practically normal; no particular change in the external ocular muscles. The field of vision of the left eye is not far from normal, with slight contraction of the green field. On the right side the form field is normal. There was reversal of the red and blue lines on the vertical meridian, with slight concentric contraction of these fields. The green field, decidedly contracted, occupies its normal position. The left eye watered when she masticated, which may have been an hysterical symptom, but in the present case was probably connected with nasal difficulty high up.

It is to be said that while such a case presents the features of an hysterical contraction, there must always be a fear that side by side with the hysterical state there is a general degenerative change in the spinal cord, and the only hopeful feature lies in the fact that these degenerative diseases when associated with hysteria are, for some strange reason, more easily cured than similar changes unconnected with hysterical conditions.

CASE XVII.—Hysterical paralysis with tremor; normal form fields. At first, partial reversal of the red and green lines. The form field normal in position. Later no reversal of the red and green lines together.

History.—Aged 40 years, private patient of Dr. W. A. Mitchell. History of the character of whom there are many and a variety of general impressions. But with the exception of the present trouble a general health of good and good character. The disease began as

of a nervous disposition, and she has had occasional fainting attacks from childhood. At one time there was frequent supra-orbital neuralgia, said to have been malarial in origin.

Her present complaint is of pain in and inability to use the left arm and shoulder, dating from October, 1892, when she had a fainting attack which lasted an hour. She fell upon the floor; but, after a few hours, was able to walk upstairs, and was perfectly clear in her head; nor was there any trouble with the shoulder until the next day, when it felt sore, and trouble in moving it developed slowly during the next month, since which time it has remained stationary. She is very emotional, weeps much, and is subject to fits of great depression. She has occasional vertigo; menstruation ceased two years ago.

The patient is very stout. The fore-arm and fingers are moved perfectly well. Movements of the left shoulder are restricted apparently both by pain and by weakness. On attempted passive movement of the shoulder, she fixes the muscles strongly and cries with pain. On active movement, there is shaking of the fingers and arms, which, at times, is very rapid and violent. This is usually absent when at rest, but is increased by emotion and by attention to it. The other arm sometimes shares in this same movement. The patient says that the arm was at one time swollen, but there is now neither enlargement nor wasting, and the muscles react well to Faradic electricity.

Sensation is normal in all forms on both sides. There is no pain on pressure over the nerves. The knee-jerk is very slight. The left biceps jerk very marked; the right biceps jerk very slight. Heart and lungs are normal. The dynamometer: right 30, left 10. The tremor is a large one,—not the fine tremor of a paralyzed arm.

Examination of the Eyes.—Central vision one-half of normal in the right eye after correction of a myopic astigmatism; normal in the left eye after correction of a compound hypermetropic astigmatism; no anomalies of the external ocular muscles, save slight insufficiency of the internal recti; pupillary reflexes natural; slight veiling of the margins of the optic discs, which are gray in their deeper layers. Macula on the right cornea; conjunctiva hyperæmic, but not insensitive. The first examination of the visual field revealed normal form field, contracted color fields, with partial reversal of the

red and green lines; later normal form field, normal blue field, green and red lines not reversed, but close together.

The case seems a bad one of simulated hysterical joint lesion with some contractions. The limitation of voluntary motion is both from spasm of the muscle and from weakness; the limitation of passive motion is from the weakness and from pain.

CASE XVIII.—Hysterical night ptosis; normal form fields; blue and red lines normal, but partially reversed; contracted green field, most marked upon the right side.

Mrs. M.; aged sixty-seven; 2 children. Was always nervous and her general health has never been good. She has suffered extreme privations and exposures, joining her husband in Nicaragua with Walker's expedition, and bearing a child while living there on scanty and bad food in an unhealthy climate. She had the severe malarial fevers of the region during this time.

Her family history includes no case of serious nervous disease, but the headache of which the patient now complains is a hereditary one. From childhood she has had, at frequent short intervals, violent head pain, usually beginning in the middle of the night and lasting till morning. The pain is described as "dreadful." It begins in the lateral occipital region and spreads rapidly over the whole head. It wears off in the morning hours, but leaves her prostrated.

Two years ago she first suffered with spasmodic closure of the eyes during the night. She wakes and finds herself unable to open her eyes. After some minutes of effort, she succeeds in raising the lids, but they at once close firmly again, and only after an interval can they be naturally opened once more. There is, at the same time, pain and sense of weight in the upper lid. In the morning the lids are stuck together and are opened with difficulty. This trouble has of late annoyed her again, after an absence of nearly two years, coming on now after a severe attack of congestion of the liver and a cystitis. There are no changes of sensibility to be found.

Examination of the Eyes.—There are no lesions in the eye grounds of consequence, the refractive error being a slight hypermetropic astigmatism, the correction of

which gives normal vision. The eye muscles are sufficient.

The form field in each eye is normal. In the right eye the red field is the greatest in extent everywhere except on the horizontal nasal meridian, where it is exceeded in extent by the blue. The green field, considerably contracted, occupies its normal position. In the left eye the red field is again everywhere greatest in extent except on the horizontal meridian of the nasal side, where it is exceeded in extent by the blue. The green field, somewhat contracted above and below, occupies its normal position.

In another color field, taken somewhat later, precisely the same conditions obtain, except that the red field, again everywhere the largest save on the horizontal nasal meridian, considerably exceeds the normal limits;

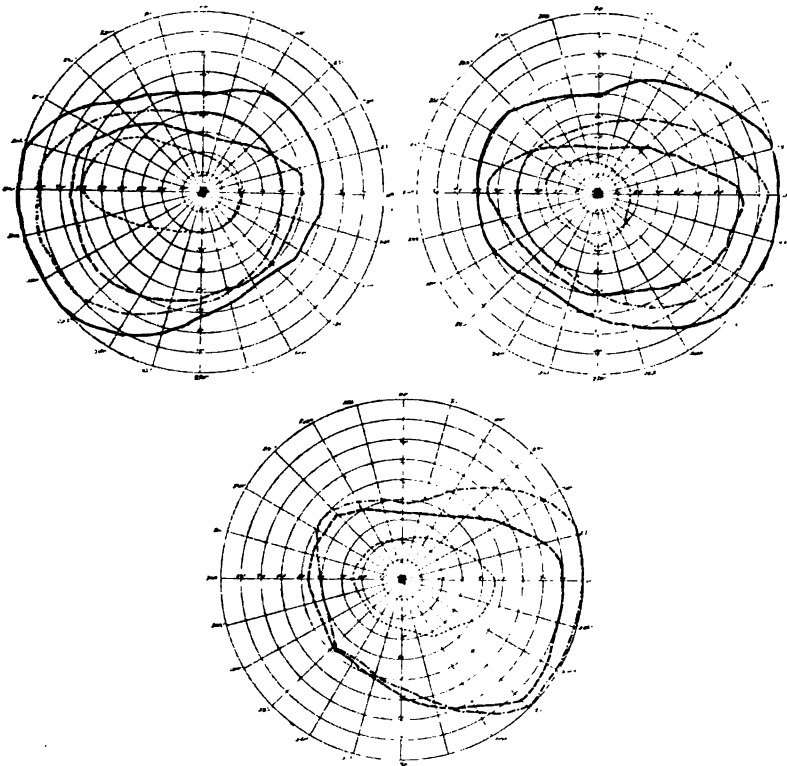


FIG. X.

Diagrams of the fields of vision of Case XVIII, showing partial reversal of the red and blue lines and contraction of the green.

in fact, it almost equals the ordinary form field. The blue field, about normal in extent, follows, while the green field, considerably contracted, is in its usual position.

This is evidently a case of spasmodic ptosis, of the sort described by Dr. Weir Mitchell in his lectures on nervous diseases. It is an hysterical symptom, and nearly always nocturnal in its occurrence, as in this case.

The difficulty of drawing a definite line which shall separate neurasthenic from hysterical states is illustrated by this patient's case.

She would be properly described as a depressed, somewhat hypochondriac patient, but she is hardly at an age when one would look for typical hysterical developments, yet the ptosis is undoubtedly pure hysteria, and no organic lesion can be imagined which could cause it as a solitary symptom.

The following cases may properly be classified as neurasthenic, and their histories are added in contrast to the examples of pure hysteria which have preceded them.

CASE XIX.—Cerebrasthenia; practically normal visual fields; slight reversal of the red and blue lines on the right side.

C. J. H.; aged forty-five; single; mechanical engineer. The patient was of good habits, worked to excess from boyhood, suffered much domestic trouble, especially by the death of a near relative from cerebral cancer, and had other worries which distressed him greatly.

In 1877 he was under treatment by Dr. Weir Mitchell for excessive irritability about trifles, causeless anxiety, etc., and recovered his health. In 1891 new annoyances in his family upset him again; he began to fear he would die from cerebral cancer, as his relative had done. His voice grew husky after talking; he could not articulate properly at times, saying his lips failed him, or he could not find the word he wanted.

Rarely, he had intolerably severe headaches in the

temples or at the vertex. He was always nervous and frequently dizzy. As the result of his worrying, his physical condition became very bad.

He sold a business which had grown by his painstaking and ingenuity to great importance, and came to Dr. Mitchell again for treatment. His eyes had been examined within a year and pronounced good by a competent oculist. He was anxious, unable to occupy himself, and had never learned to take any interest in matters outside of his business, which rendered his treatment difficult.

On examination, his physical condition, while it showed a general debility, gave no evidence of any material lesion; heart and lungs were sound, bowels and digestion fairly good, and the urinary examination negative.

He walked well, though somewhat stiffly. Knee-jerk and other reflexes normal. He was anæmic and under-muscled, and with a healthy life and out-door occupation readily reached a higher standard of health, when his cerebrasthenic symptoms soon disappeared.

Examination of the Eyes.—The refraction was compound hypermetropic astigmatism, which had been corrected, and there were no lesions of importance in the fundus oculi or in the external ocular muscles.

The field of vision of the left eye was practically normal, the red and blue lines running rather close together; in the right eye the field also practically normal, except for a slight reversal of the red and blue lines above. These visual fields corresponded with those taken by Dr. Norris some time previous, who found no special change, save that the red and blue lines were in close proximity.

CASE XX.—Melancholic neurasthenia, with hysterical muscular hyperæsthesia; normal form fields; partial reversal of the blue and red fields; contracted green field.

E. R. S.; aged thirty; has been married nine years; had one child, which lived but a few hours. Family history is good, so far as organic disease is concerned, but several brothers and sisters are all of nervous dispositions, and her father suffered with nervous asthma throughout many years. The patient cannot remember to have been many days without headache since her childhood. She is worse since a very severe labor in 1887, when the cervix uteri and perineum were severely

torn and a forceps delivery was made under ether. She has never recovered from the depression of this illness.

She is now (October, 1892), very nervous; cries a great deal; has constant headache, with periods when it is very much worse for a week together. Her whole spine is very painful and tender. She is practically bed-fast; the bowels are very troublesome on account of a partial inability to retain fæces, from the injury to the sphincter muscle in the tear of the perineum, and she has constant nausea. She is fat, with an unwholesome kind of watery-looking flesh, and she suffers a great deal from chronic conjunctivitis.

Examination of the Eyes.—Vision, after the correction of a mixed astigmatism, as follows:

O. D. — $50 + 3.25^{\circ}$ axis $95\frac{1}{2}$.

O. S. — $50 + 3.50^{\circ}$ axis $90\frac{1}{2}$.

Exophoria 12° ; no lesions in the fundus oculi other than those incident to long continued eye-strain; conjunctiva not insensitive, but the papillary layer thickened from long-standing inflammation; refractive and muscular defects thoroughly corrected with glasses and prisms.

The field varied on different occasions, according to the patient's condition, an average field being the one presented in the diagram; namely, normal form, partial reversal of blue and red, and contracted green field, most decided upon the left side. At other times, however, the visual field was practically normal. It was always mapped with great difficulty, owing to the pa-

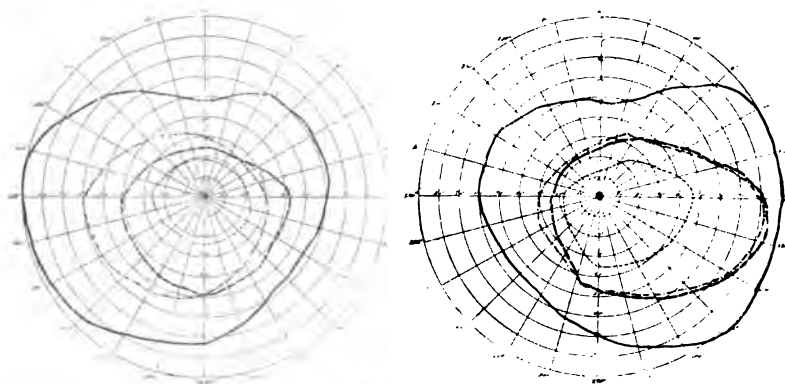


FIG. XI.

Diagrams of the fields of vision of Case XX, showing partial reversal of the red and blue lines without change in the form field.

tient's inability to maintain the eye with steadiness, or to keep it open, on account of the tendency to lachrymation.

The obvious physical troubles were supplemented by a very nervous disposition on the part of the patient and a tendency to melancholia, and the case is one somewhat difficult to classify, but should rather be called neurasthenic than hysterical. The one marked hysterical symptom was a decided muscular hyperæsthesia of the shoulders and arms and several areas of extreme tenderness in the spine. The vagina seemed also to be very irritable, so that a vaginal examination was rendered extremely difficult, and there was a small fistula communicating from the rectum into the posterior vaginal wall.

CASE XXI.—Sexual neurasthenia; hysterical hallucinations; no anæsthesia; irregular reversal of the color fields.

A. B.; a man, aged forty-two; a private patient of Dr. Edward Martin; was sent for examination October 14, 1889, to determine if possible the cause of very constant occipital headaches.

Many of the symptoms of this patient were hysterical in nature, chiefly in the form, however, of imaginings. He had at the same time undergone a severe mental strain with great affliction in his family, and was distinctly melancholic. The optic nerves were slightly gray. There was compound hypermetropic astigmatism, the correction of which yielded normal vision, but no careful field was taken.

More than a year after this, when his symptoms were rather those of neurasthenia, and especially sexual neurasthenia, a careful color field was taken, and exhibits conditions shown in the chart.

Examination of Eyes.—In the right eye the white line occupied its normal position; the red line was everywhere the greatest in extent of the color fields. Next came the blue above, but this below was exceeded in extent by the green field. The yellow line appears irregularly, part of the time exceeding all of the color lines in extent, but for the most part occupying the smallest area. In the left eye the conditions were very similar,

except that the red line does not everywhere occupy the greatest extent, being exceeded by the green line below and also to the nasal side. The yellow line is again for the most part the smallest in extent. There was no anæsthesia in this case at any time, and with the exception of the more or less characteristic color field, not any symptoms that were definitely those of hysteria.

It is extremely difficult to classify this case. At one time the symptoms were markedly hysterical in nature, and might properly be described as hysterical hallucinations, and there had been sufficient affliction in his family to cause apprehension that true melancholia would set in; later these gave place to a series of neurasthenic symptoms, of which the most marked was a sexual hypochondriasis. It was during this time that the very curious fields of vision were mapped, which in their irregular and bizarre character, somewhat resemble those of Case VI. The patient has entirely recovered, but has never been willing to submit to another examination of his fields of vision.

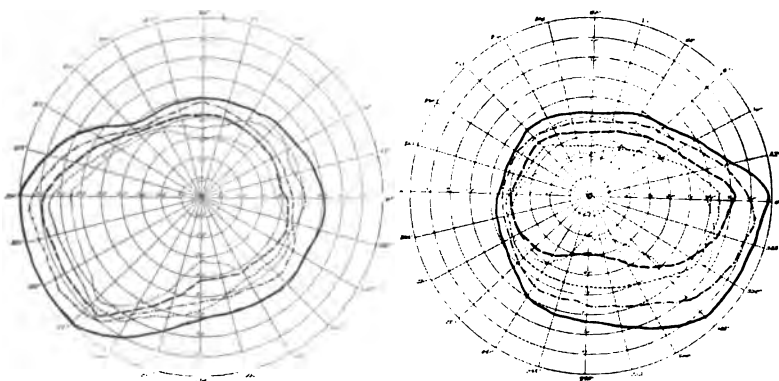


FIG. XII.

Diagrams of the fields of vision of Case XXI, showing irregular reversal of the color lines. Compare with Case VI.

CASE XXII.—General neurasthenia; hysterical, rapid respiration; practically normal visual field.

R. H. G.; aged thirty-two; a professor of literature; an intelligent, hard student, repeatedly overworked, al-

ways worried by trifles. He has broken down more than once, and is now in the Infirmary with a general neurasthenic state. Somewhat depressed, with sighing rather rapid respiration. A heart strangely irritable, running up wildly from trifling exertion or emotion. No organic disease, and but little functional disturbances of any kind beyond this cardiac difficulty, and the rapid respiration.

Examination of the Eyes.—In each eye the optic disc was of fairly good color, a crescent of choroiditis being situated at their outer portions; the refractive error was myopia, and there was moderate insufficiency of the internal recti muscles. There is practically no change in the visual fields, except slight concentric contraction of the color fields, most marked upon the left side, while the contraction of the green field is greatest on the right side.

The following cases of spinal injury are added because they represent, in a remarkable manner, changes in the field of vision, more ordinarily seen in hysteric states.

CASE XXIII.—Spinal injury; hysterical anæsthesia; marked irregular contraction of form and color fields, with nearly complete reversal of the red and blue lines.

Female; aged thirty-nine; mother of seven children. Applied for admission to the Infirmary for Nervous Diseases May, 1892, complaining of numbness in the spine, especially in the back of the neck, which had come on since a fall on the back in December, 1890, when she struck the nape of the neck and was for a short time unconscious. She broke a rib and sprained both ankles, and had pain in back of head for some time afterwards, being in bed some six weeks. She stated that after sitting for a time she found it difficult to rise, and that the headache was constant until recently, when it had been replaced by the numbness in the spine.

Sensibility to touch was impaired on both hands, more marked in the left, and there was impairment of thermal sense. The face, however, was sensitive to heat on the left side only. The conjunctivæ and the tongue were both insensible, and the face generally less sensitive than the body; indeed, a prick which brought blood produced no expression of pain whatever.

There was general anæsthesia, more marked on the

left side.. There could be no sensation produced on the upper part of the body, even by the electric brush.

Examination of the Eyes.—The investigation with the ophthalmoscope reveals no lesions, and there are no changes of importance in the external ocular muscles; the pupillary reflexes are normal. The fields of vision show very remarkable changes; namely, marked concentric contraction of both form and color fields, nearly complete reversal of the blue and red fields, and great contraction of the green field upon the left side.

It was apparent that while the original shock and injury had been considerable, there was no lesion of the cord present to account for any of the symptoms, nor could anything else but hysteria have been capable of producing such a series of symptoms. This was fairly proved by the examination of the eyes, and the only strong fact against it was the absence of knee-jerk.

This case of slight spinal injury, with hysterical additions, may be compared with the much more severe case of R. N., which follows:

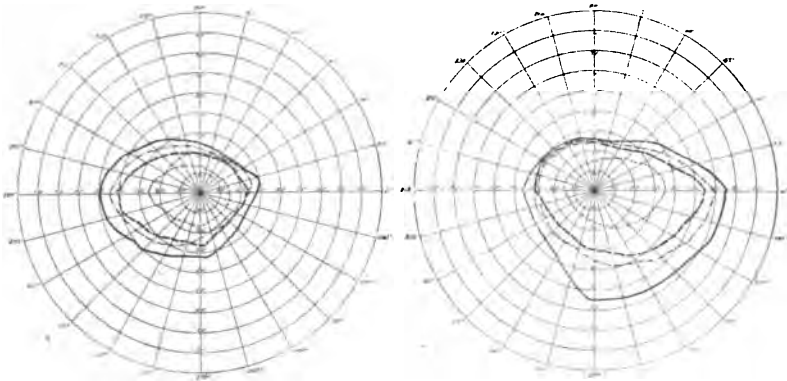


FIG. XIII.

Diagrams of the fields of vision of Case XXIII. showing general contraction and reversal of the blue and red lines.

CASE XXIV.—Spinal injury; contraction of the color fields, and complete reversal of the blue and red lines.

R. N.; female; aged thirteen. At the age of ten years the child fell twenty or thirty feet from a tree. There were no bruises or apparent injuries, and she was not stunned; but immediately upon being taken up she

exclaimed: "Stretch my arms and legs and fingers and toes." She could not use her arms, hands, legs, feet or head, and suffered from a pain so intolerable that she could not be moved in any way. The hands and arms and the whole anterior aspect of her body as low as the hips were extremely sensitive, so that she could scarcely be touched, even with a soft sponge. There was early and entire loss of sensation to pain and touch below this point. She did not pass her water voluntarily from the beginning, and after the first few days, for three months, there was a constant flow of urine; since then, however, the bladder is able to retain, though not to excrete, the urine. The bowels only moved by an enema, and the urine was, for the first nine weeks, very pale, almost watery, in its color, and extremely abundant.

After the first few weeks the nervousness passed away, and she began to move her head and presently her arms. About the same time (the end of the first month) the extreme sensitiveness of the arms gradually disappeared. With the exception of the contraction of the fingers, she has entire control of her body above the waist, although she is easily fatigued by sitting erect in a chair, and if the erect position is too long maintained begins to feel faint. This was the history up to December, 1892.

When the patient was first seen by Dr. S. Weir Mitchell (December, 1892), the following notes were taken:

As the child lies in bed she cannot move her legs, although by a strenuous effort it is possible to make some small movements. The fingers are flexed in the palm and can easily be passively straightened. This is accompanied with some pain. The hands turn inward and there is no voluntary movement of the digits. The hands can be extended from the wrist, but not flexed, adducted or abducted. There is free movement of the forearm and shoulder in every direction, but some weakness. The head and neck are perfectly moved. There is complete anæsthesia up to the level of the second dorsal vertebra. On the arms there is anæsthesia on the ulnar side of the forearm and posteriorly from fingertips to shoulder. The boundaries of sensation for touch, pain and temperature correspond, except that on the arms pain is felt. Plantar jerks are present. Clonus is sometimes present, sometimes absent. No knee-jerks; elbow-jerks marked; no marked muscular-jerk in legs or

arms. At times, without apparent cause, the legs become suddenly spastic, but usually are perfectly relaxed. On waking in the morning the legs are always spastic. Any pain, as the prick of a pin, or a Faradic current, causes jerking of the entire leg. A prick on the head is felt, but incorrectly located, as if the spine could not translate the nervous message. A prick upon the feet or legs, when felt, as sometimes happens, is referred to the head; this is true of both touch and pain. There is more atrophy in the intrinsic muscles of the hands and in all the thumb muscles. There is some atrophy in all the arm muscles, especially in the extensors, and the legs are a good deal wasted.

On examination of the spine no deformity could be seen. Sensitive spots were developed by percussion, but the position of these tender places seemed to vary almost minute by minute. During the examination it was noticed that the excitement consequent upon it had caused profuse sweating of the face, limited entirely to the right side.

The urine was alkaline and contained some pus and mucus, but no casts.

The child was of unusual intelligence, of most amiable and pleasant disposition, very quick and observing, and not at all hysterical. She had, with great pains and patience, learned to use her hands, in spite of the contraction of the fingers, so that she writes better than most children of her age, and draws quite cleverly with a pencil held between the contracted fingers and the palm of the hand.

Examination of the Eyes.—In each eye there was an oval optic disc, the temporal half being pallid, the veins full and slight haze throughout the eye-ground. The central vision was normal and the accommodation ample; pupillary reflexes natural.

The field of vision for form in each eye is natural; the color fields are contracted, blue and green being especially narrowed; there is complete reversal of the natural sequence of the red and blue lines, red being everywhere larger.

There was only one opportunity for making this examination, but there seems little doubt of its accuracy, owing to the unusual intelligence of the patient and the entire absence of hysteria or suggestion. For the pur

pose of comparative examination, a patient in the service of Dr. Weir Mitchell, with paraplegia from upper dorsal Potts' disease, was examined, in so far as the visual fields are concerned, without finding any changes whatever resembling those detected in the case just detailed. The fields of vision were entirely normal, both for form and color, and in the sequence in which the colors were appreciated.

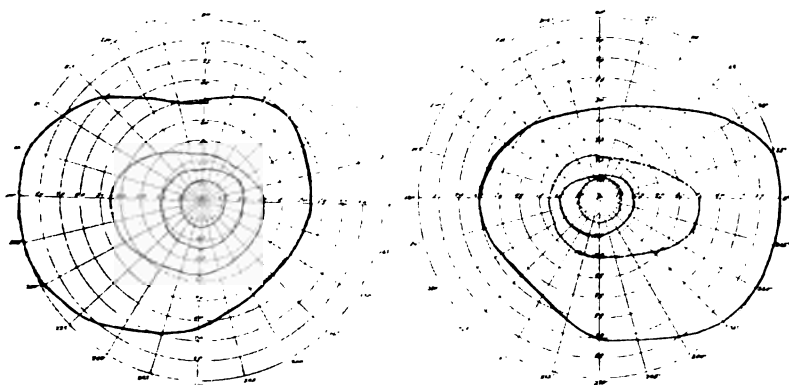


FIG. XIV.

Diagrams of the fields of vision of Case XXIV. Normal form fields; contracted color fields; complete reversal of red and blue lines.

CASE XXV.—Hysterical spasm of left arm; hysterical paraplegia; general convulsions; malingering; color fields normal on one side; contraction and reversal by suggestion on the other.

M. P.; aged forty-eight; tailor; German-Hebrew; married. Was first treated in Dr. Weir Mitchell's clinic at the Infirmary for Nervous Diseases, in 1877. He was then affected with a violent and uncontrollable spasm of the left arm. There was constant rapid pronation and supination of the left hand, flexion and extension of the forearm, and slight rotation of the whole limb around the shoulder. If he attempted to hold anything in the hand the object was thrown violently over his head. The patient was lost sight of after a few months, but returned in May, 1891, with violent movements of the left arm and some difficulty in walking.

The family history presented no cases of nervous or mental trouble. The patient was one of fifteen children,

of whom eight had died in infancy. His own health had been always good, until the attack which first brought him under observation in 1877. Later in that year he noticed a growing weakness of the left arm and of both legs, first after sleeping in a draught, and again after a small nervous shock. He could move the legs while recumbent, but after the first few weeks could not stand. This paralysis continued seven years, when on the suggestion of an acquaintance, he tried successfully to walk backward. During his son's serious illness he ran about the room for half an hour, but collapsed again after the excitement was over. He was treated in Germany and partially recovered his power of locomotion, which has remained fairly good since, with the peculiarities described below.

He walks with two canes, holding them straight in front of him and leaning but slightly on them. He steps very short, but his gait is normal after he once gets under way. If he attempts to walk supported by a hand, without his canes, he falls in a heap, after apparently violent efforts to step forward. He has occasional epileptiform spasm of the left arm, which may cause general convulsive movements, so violent as to throw him down. Consciousness is not affected. These attacks occur always after a muscular effort. A very slight sudden movement, such as forcibly closing the eyes, is sufficient to cause them. Spasms were brought on in hospital by massage and by hypodermic injections of water. The patient carried his canes and fed himself perfectly, although if ordered to perform rapid small movements with the hands there was some inco-ordination manifested.

His station is uncertain with open eyes, much worse if the eyes were covered. Sensation is normal in all forms. K. J. capricious and variable; reinforcible. There is an attempt at ankle-clonus. He has a tender spot in the spine over the second dorsal vertebra.

The patient was highly emotional, delighted with being observed as an "interesting case," and always much worse while under observation.

Examination of the Eyes.—Right eye: nearly round optic disc, gray in its deeper layers; scleral ring somewhat broadened. Veins full and arteries contracted; general rarefaction of the choroid; low myopia. Left eye: oval optic disc; scleral ring well marked all around, and broadening out into a crescent of choroidal

disturbance; deeper layers of the disc gray; pupillary reactions prompt. In the right eye, the visual field for form and colors is practically normal; only slight concentric contraction of the color lines. In the left eye there is restriction of the form field and irregular reversal of the color lines. This result was secured purely by suggestion. After the field of the right eye had been mapped, the ordinary phenomena which take place in hysterical cases, so far as the field of vision is concerned, were explained, with the result noted in the diagram.

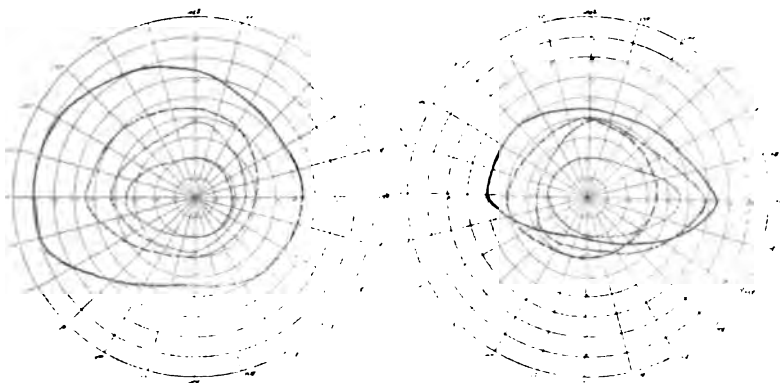


FIG. XV.

Diagrams of the fields of vision of Case XXV. Practically normal right visual field; irregular reversal in left visual field the result of suggestion.

This case was at the last mere malingering. At first there was a hysterical element, and the diagnosis made by Dr. Weir Mitchell was "male hysteria." A full report may be found in Dr. C. W. Burr's paper on "Unusual Forms of Spasm,"* to which we are indebted for the history given here in abstract.

A rapid recovery resulted upon the withdrawal of the allowance made to him by a charitable society.

It is evident, from an examination of the fields of vision of the first series of seven cases, in which one or other of the varieties of anæsthesia is a marked symptom, that the most usual abnormality is a more or less complete transposition of the red and blue lines, red

*JOURNAL OF MENTAL AND NERVOUS DISEASE, May, 1892.

being the greater in extent. In two instances (Cases I and III) the red field is not only larger than the blue, but exceeds even the width of the form field, and in one (Case IV) there is partial reversal of the green and blue lines. Several of the cases, in addition to this abnormality in the sequence of the color perceptions, are characterized by great contraction of the general field (notably Cases I and V); in the latter true reversal was not demonstrated, but the extreme contraction of the field rendered it difficult to satisfactorily determine this point.

In one case only (Case VII) are the form and color fields normal in extent. As has already been pointed out, although there was anæsthesia in this case, it was of minor character.

It is notable that in the patient exhibiting the least marked general hysterical symptoms, there is the most remarkable deviation from the normal standard of the visual field, namely, Case I, where, in addition to reversal of the color lines, there is unusual contraction and binasal hemianopsia.

In the cases classified as examples of hysterical hyperæsthesia the disturbances in the visual fields are of secondary importance; slight increase of the normal extent of the color lines on the temporal side, partial coinciding of the red and blue lines, and moderate general contraction, being the only indications separating these fields from those which are found in normal individuals. Deviations so trifling as these, and so uncertainly present, cannot be regarded as peculiar to the condition.

In the cases classified as major hysteria it is notable that although there is contraction of the visual field in two of them, there is no reversal, and, in fact, no change which may be described as characteristic of the hysteric state, in spite of the magnitude of the general nervous phenomena.

In the cases classified together because the most decided manifestation was local in its character, the visual fields present all the varieties of changes common in

hysteric subjects. Thus, we find practically complete reversal of the red and blue lines, partial reversal, relatively greater contraction of the green than of the other fields, and what may be termed varying inequality of the fields, namely, sometimes partial or complete reversal of the red, blue and green lines, and, again, failure of such reversal, with practically normal extent of the color fields.

It is notable that in the cases of major hysteria there is no reversal and also no anæsthesia, and it is equally worthy of remark that in the local hysterias, although there is no anæsthesia, yet there is also more or less complete transposition of the red and blue lines.

In the cases classified together as neurasthenic patients, the changes in the visual fields are not very marked, with one exception. True, partial reversal of the blue and red lines and contracted green fields are evident in two of them, but the marked nature of these changes is less evident than in the pure hysteric cases, and this has been our experience in a number of other neurasthenic patients, whose histories are not included in this list. Indeed, in many of them the fields of vision are not far from normal, and if they exhibit any type of change it is that most often seen in anæsthesia of the retina, particularly studied by Wilbrand, a reference to which will be found in the earlier portion of the paper.

One of these cases forms a marked contrast, the fields of vision being characteristically hysteric in composition, namely, Case XXI. From the history, however, it is extremely difficult to classify this patient, as at one time his symptoms were markedly hysteric in nature, and at another time distinctly melancholic or neurasthenic.

The two cases of spinal injury represent in a remarkable manner changes in the field of vision. In one (Case XXIII) there was hysterical anæsthesia in addition to the spinal injury—an implantation of hysteria upon a probable organic lesion, and consequently the reversal of the red and blue lines might naturally be expected.

In the other case, with the most characteristic changes in the normal appreciation of the colors, and with undoubted organic lesion in the spinal cord, there is no good evidence that there was an hysteric element. It is a startling case. The changes may be individual, or possibly may be due to spinal injury. If due to spinal injury, they offer an inviting field for further investigation, although, so far as we have been able to carry this on by contrasting these fields of vision with other cases of spinal disease in about the same region, we have not found a similar change in the visual fields. Further data on this point are evidently needed.

The concluding case (XXV) of the series, so evidently one of malingering, and yet so remarkable in its mimicry of symptoms which might be either hysteric or organic in their origin, so far as the visual fields are concerned, is an excellent example of the acceptance of suggestion as an aid to establishing the plausibility of his case.

In conclusion we submit the following propositions:

(1) Achromatopsia, or loss of color sense, as described in our previous paper (*American Journal of the Medical Sciences*, November, 1889), is not present in the American cases, (certainly not as it has been described by Galewski and other French observers).

(2) Reversal in the normal sequence of the colors, so that red is the largest field, is usually present when there is anæsthesia, but that disturbance of the color-sense and anæsthesia do not necessarily belong to each other is proven by the fact that we have examined at least two cases of universal anæsthesia with no alteration of the visual fields, and a third case in which, although there was most marked contraction, reversal was not demonstrated.

(3) The green field is, relatively at least, more and more often contracted than the others.

(4) In the difficult distinction between certain types of neurasthenic and hysteric patients, the presence of disturbance in the color-sense is of diagnostic import; it

is less apt to be present in the former than in the latter, and yet its absence is of little meaning, as we have not found it in many typical cases of hysteria and have found it in others which are properly classified in the neurasthenic category.

(5) It is possible that in the rare cases of hysterical one-sided or general hyperæsthesia it will be found that colors are more acutely appreciated than is normal, and that the color fields are correspondingly enlarged, although we can make this only as a suggestion, having received a hint of it in one case, but not having found it in others.

(6) The violence of the hysterical manifestations bears no relation to the disturbance of color-sense, the most marked change being found in patients the least affected nervously, and practically normal visual fields where the general symptoms of hysteria, anæsthesia excepted, are of the highest grade.

(7) Some of the following changes, so far as the field of vision is concerned, are likely to be present in cases of hysteria:

(a) Simple contraction of the color fields, with unaffected form fields.

(b) Contraction of both form and color fields, the green field being relatively more contracted than the others.

(c) Partial or complete reversal of the normal sequence in which the colors are appreciated, most commonly that variety in which the red field is greatest in extent. Under these circumstances the color fields may be normal in extent, sometimes even wider than is normal, or there may be an associated contraction of all the color fields.

(d) Unusual obscurations of portions of the visual field, for example, in the form of a hemianopsia, or greater contraction of the fields on one side than on the other, the greater contraction usually being found on the same side with the anæsthesia.

Periscope.

UNDER THE DIRECTION OF JOSEPH COLLINS, M.D.

EXCERPTS WILL BE FURNISHED AS FOLLOWS :

<i>From the Swedish, Danish, Norwegian and Finnish :</i> F. H. PRITCHARD, Norwalk, Ohio.	<i>From the Italian and Spanish :</i> WILLIAM C. KRAUSS, M.D., Buffalo, N. Y.
<i>From the German :</i> WILLIAM M. LESZYNSKY, M.D., New York. BELLE MACDONALD, M.D., N. Y.	<i>From the Italian and French :</i> E. P. HURD, M.D., Newburyport, Mass. <i>From the English and American :</i> A. FREEMAN, M.D., New York.
<i>From the French and German :</i> L. FISKE BRYSON, M.D., N. Y.	<i>From the French and German :</i> P. MEVROWITZ, New York.

The Editor will not accept as ORIGINAL ARTICLES and CLINICAL CASES those that have appeared elsewhere.

Authors are requested to make none but typographical corrections on the proof sent to them. The manuscript must represent the final form in which the article is to be printed.

CLINICAL.

One Hundred Consecutive Cases of Epilepsy; their Treatment and Refraction.—Dodd (*Lancet*, Oct. 28, 1893). Of 100 consecutive cases of epilepsy, 75 were ordered to wear glasses, of these there were 23 who either did not wear them or failed to report themselves later and could not be found. Of the remaining 52 cases there were, (a) 13 who had no fits since using glasses, during periods varying from four months to a year; (b) 3 cases who had remained *in statu quo*; (c) 36 cases whose condition had improved since wearing glasses. In the majority of these the improvement was marked. In all cases the physician had continued the ordinary treatment. The writer thinks that given a certain condition of instability of the nervous system—(a) errors of refraction might excite epilepsy; (b) the correction of errors

of refraction would, in combination with other remedies, in many cases cure or relieve epilepsy; (c) in some cases where the refraction error had been corrected, the epilepsy would continue, generally, in a modified form, in consequence of other irritation, even though the error of refraction might have been the exciting cause of the epilepsy. The condition of the eyes in this series compared with fifty normal eyes showed that of simple hypermetropia there were 25 per cent. less in epileptic than in the apparently normal class; of astigmatism there were 20 per cent. more in the epileptic division than in the normal one, the amount being made up mainly of compound hypermetropic astigmatism.

J. C.
Hereditary Spastic Spinal Paralysis.—Strümpell (Deutsche Zeitschr. f. Nervenheilk., Oct., 1893).

Strümpell sums up his conclusions concerning hereditary spastic spinal paralysis as follows:

1. Under the influence of an abnormal hereditary defect there develops, slowly but progressively, a primary systematic degeneration of the crossed pyramidal tracts of the spinal cord.

2. The symptoms of the disease first show themselves in the third decade of life, the earliest being a sharply defined spastic disturbance of the lower extremities.

3. After many years the disease passes, as a rule, into a true spastic paresis and paraplegia of the legs. Affection of the upper extremities, the tongue, the lips, etc., in a similar manner which would indicate involvement of the pyramidal tracts high up in the cord, is very much seldomer and very much later.

4. As a rule, the pathological changes limit themselves to a degeneration of the pyramidal tracts with a slight degeneration occasionally of other systems, especially the direct cerebellar tract and Goll's column. From a clinical point of view, disturbance of the temperature sense and a lesser disturbance of the functions of the bladder are the symptoms most frequently found with this condition.

He gives in detail the symptoms of a case, the interesting points of which were as follows: The patient's grandfather, father, two uncles, and one brother were affected in a way similar to the patient. In his childhood and youth the patient was healthy and strong. The first symptoms of his trouble—a peculiar disturbance in the power of moving the legs—appeared insidiously

and gradually when he was about twenty-six years old, and while he was serving as a soldier. It was not till eight years later that there was much difficulty of locomotion. Very gradually the gait became stiffer and more laborious. The only symptom complained of by the patient is the girdle sensation. The function of the bladder and rectum and the upper extremities remain normal. Examination of the patient, in 1886, revealed marked muscle resistance to passive motion. The slower and more cautiously the passive movements are made, the less the resistance of the muscles is apparent. Voluntary movement in the legs is good but stiff, and the strength of the legs is considerable. Knee reflex, both sides much exaggerated. Ankle clonus marked; sensibility undisturbed. Temperature sense not so acute in lower extremities as in upper. Gait typically and clearly spastic.

In the last seven years the symptoms have become gradually worse, and what before might be termed spastic pseudoparalysis, is now a true spastic paresis of the lower extremities. The gait has become very much stiffer, slower and more dragging. No atrophy of muscles or disturbance of bladder. Until the present year, 1893, there has been no disturbance of sensibility, but now there is a partial loss of temperature sense of the lower extremities.

J. C.

Syphilitic Spinal Paralysis—Oppenheim (Berlin; Klin. Wochenschr, No. 35, 1893).

Oppenheim first refers to the fact that Erb characterizes the symptom complex of syphilitic spinal paralysis as follows:

The gait is markedly spastic, the muscular spasm is comparatively slight; the tendon reflexes greatly exaggerated; the muscular weakness is not proportionate to the disturbance in the walk; there exist almost constantly bladder weakness, diminution, impotence, and sensory disturbances; the cranial nerves as well as the upper extremities are spared. The condition usually develops gradually in the course of weeks, months, or years. The difficulty in walking progresses to a high degree of spastic paresis; infrequently to paraplegia, which soon returns to the condition of spastic paresis. The differential diagnosis involves difficulty only as regards myelitis transversal dorsalis. Absolute differentiation, as Erb concedes, is impossible; yet he believes certain peculiarities to point to the syphilitic affection.

Foremost among these is the fact that paraplegia does not usually manifest itself, or, when it does, the paralysis disappears to a certain extent. Erb regards the anatomical basis to be a partial transverse myelitis of the dorsal portion of the cord.

Oppenheim believes that there are serious objections to Erb's attempt to classify the disease nosologically. He bases this statement on a review of the literature and an examination of his own material. He quotes from Leyden and from the previous writings of Erb to show that the well known clinical picture of myelitis plays a prominent part in the clinical history of spinal syphilis. To the question that arises, whether Erb's description of syphilitic spinal paralysis is not embraced in that of myelitis, Oppenheim answers "certainly not clearly, nor with full precision, but in outline."

View should not be lost of the fact that the most common form of myelitis is myelitis dorsalis. Myelitis dorsalis represents, moreover, the clinical picture of Erb's spastic paresis of the lower extremities with bladder troubles and sensory disturbances.

The study of spinal syphilis leads to the conclusion that the real prototype, the chief form of spinal syphilis, is the universal meningo-myelitis syphilitica.

The diagnosis of spinal cord syphilis is not so frequently made as it should be, because of the fact that the clinical picture presented is frequently that of acute or subacute myelitis. However, if the previous history and further course of the disease be considered the diagnosis of myelitis syphilitica would be more frequent.

Oppenheim regards the following as positive points in the differential diagnosis: 1. Previously or simultaneously existing brain symptoms. 2. The interrupted course of the disease and the fluctuation of the individual symptoms. 3. The symptoms of meningeal irritation and the symptoms of involvement of the roots. 4. Phenomena indicating a multiplicity of foci. 5. The incomplete symptom complex of Brown-Sequard's paralysis.

Oppenheim believes Erb's spinal paralysis may be referred to the known forms of spinal syphilis, particularly to the syphilitic meningo-myelitis. It represents only one stage in the course of the disease. It is not a disease *suigeneris*. He explains Erb's paralysis as produced in the following manner: The syphilitic thickening of the meninges is most marked in the upper parts

of the cord. The dorsal portion is most affected by compression and by the growth of nerve tissue from the meninges into the substance of the cord. As the result of early treatment, cicatrization and resorption results, but myelitis, atrophy, and above all, secondary degeneration remains. As the dorsal portion of the cord is particularly attacked, there remain as permanent symptoms those of partial myelitis dorsalis or the phenomena described by Erb as syphilitic spinal paralysis.

In conclusion, the author considers that the clinical picture described by Erb is not indicative of syphilis, when the previous possession of a chancre is but hypothetical. Every other form of diffuse lesion of the dorsal cord, especially incomplete transverse myelitis, can produce the same clinical appearance. Characteristic only are the course, the influence of treatment and the critical diagnostic points quoted above. J. C.

An Unusual Case of Myopathic Muscle Atrophy with Involvement of the Face and "Bulbar" Muscle District and Negative Discoveries in the Nervous System.—Reinhold (Deutsche Zeitschr. f. Nervenheilk., Oct., 1893).

This writer reports a case who, fifteen years ago, developed symptoms which led to her being presented to the Southwest German Neurological Association as a case of bulbar paralysis. The first symptoms appeared when the patient was thirty-two years old, and they consisted of weakness and atrophy of the facial muscles of expression, the tongue, pharynx, muscles of mastication and sterno-cleido-mastoid; also a paresis of the recurrent laryngeal. Twelve years later, the patient came under observation again, when it was found that the symptoms had remained nearly in a stationary condition. Shortly after this the patient died from bronchitis. Careful microscopical examination of the nervous system, especially the medulla and the cervical cord, and likewise the peripheral nerves of the involved parts, failed to reveal any pathological condition. Histologically the case was proven to be a clear one of primary disease of muscles. With the single exception of a few atrophied fibres in both recurrent laryngeals, between the trachea and the œsophagus, there was no histological change from normal in the nervous system. On account of the localization of these atrophic fibres in the recurrent laryngeals, their limitation to the peripheral parts of the nerve, the writer believes that the atrophy was due to

compression. Otherwise the histological changes coincided with the findings in the various forms of "Dystrophia muscularis progressiva" of Erb.

J. C.

Epidemic Cerebro-Spinal Meningitis.—Friis, of Copenhagen, has observed thirty cases of cerebro-spinal meningitis treated in the General Hospital of that city, and six that were treated outside. The disease mostly appeared in the suburbs of the city, in some cases—small house epidemics where three to five would be attacked in a house or family. Bacteriologically, the cause could not be discovered. The symptoms were the usual ones. In seventeen cases there was herpes with seven deaths. The patellar reflex was examined seventeen times and was found present in fourteen patients. In three it was absent, as they were unable to relax their muscles. Kemig's symptom contracture in flexion was discovered in twenty-one out of twenty-five cases, and is due, according to the writer, to an inflammatory affection of the nerve roots or of the cauda equina. It is not found in tuberculous cerebral meningitis. In eleven cases the urine contained albumen, in one sugar, patient died in four days, and in two polyuria. In fifteen cases they were carefully examined, and in three a non-reactive pupil; a choked disc in three. In four patients ear complications set in; in two, otitis media, in one, otitis externa and in one difficult hearing, in consequence of no apparent organic changes in the organ. An articular complication was observed in a ten-year old boy, an effusion appearing in his right elbow joint on the ninth day. A puncture evacuated synovia, but it contained no micro-organisms. He presents several cases, the history of where the diagnosis was difficult, for example, in one, a pregnant woman, it began like an incipient eclampsia.—*Ugeskrift for Sæger*, R. 4, Bd. 26, p. 407 and 431.

F. H. P.

PATHOLOGICAL.

Motor Phenomena.—By Dr. Rudolf Kolish (*Deutsche Zeitschrift für Nervenheilkunde*, July, 1893).

The author's object in this contribution is to present new evidence in favor of Kahler and Pick's view that the compact pyramidal tracts are involved in the production of the motor phenomena, and not the optic thalamus as advocated by Stephan. The cases presented by Kolish to support Kahler and Pick are briefly as follows:

CASE I. Bilateral oculo-motorius paralysis, more

marked on right side; cerebellar ataxia, motor ataxia of upper and lower extremities, hemiparesis, hemichorea. Death caused by supervening tubercular meningitis.

The autopsy revealed a tubercle of the region of the corpora quadrigemina, mainly on the right side.

The microscopic examination of the brain showed partial lesion of the roots of the oculo-motorius to which the ocular paralysis presented by the patient *in vivo* is referable.

Kolish refers the cerebellar ataxia to lesion of the right nucleus rubor. For the motor ataxia of the extremities, he holds the lesion of the tegmentum of the peduncle responsible. But in Kolish's case, the bilateral motor ataxia remains without explanation. It is possibly due to mechanical influence.

CASE II. Oculo-motorius paralysis, particularly marked on the right side; left hemiplegia and hemichorea; tic of left facial nerve; normal sensibility; absent knee-jerks.

No autopsy. Diagnosis made of lesion of right cerebral peduncle, extending partly over median line. Anatomical nature most probably a tubercle. Tic of the facial nerve, and the chorea is explained by involvement of the motor paths within the peduncle.

Both these cases present post-hemiplegia chorea.

Similar to Case II is Menz's case, which presented the following symptoms: Right facial and partial motor oculi paresis; complete left oculo-motor paralysis; right hemiparesis and hemichorea; hemiplegic gait.

The diagnosis made in this case was, lesion in the region of the left peduncle, crossing the median line.

Different theories have been propounded to account for these post-hemiplegic motor phenomena. Charcot believes in the existence of a choreogenous bundle in the internal capsule running near the carrefour sensitiv. Gowers localizes their origin in the thalamus. Galvani and Stephan are of the same opinion. Kahler and Pick refer the post-hemiplegic movements to irritation of the pyramidal tracts. Kolish supports the views of Kahler and Pick, and claims it finds no contradiction in any known observation. He presents the following cases as showing that lesions of the pyramidal tract not in the vicinity of the cerebral ganglia may produce the disturbances under consideration.

Case of Ewald: Tubercle in the pons beneath the corpora quadrigemina to the right of the median line, in-

vading the substantia nigra. *In vivo* pendulum-like movements of the left extremities.

Case of Broadbent: Glioma on the floor of the fourth ventricle, involving the facial and abducent nuclei, and to a slight extent the pyramidal tract. The main symptoms were left facial and abducent paralysis; choreic movements of the right arm and both legs, particularly the right.

These cases are similar to Case I. As in the latter case, the brain was perfectly normal (excluding the lesion of the corpora quadrigemina), the hemichorea may be referred to the irritation of the pyramidal tract in its course through the pons. As the tubercle was sharply defined, and no pressure symptoms manifest during the course of the disease, operation through distance, particularly indirect lesion of the thalamus, may be excluded.

There are also no grounds for believing that the lesion of the structures lying in the posterior part of the pons, or in the tegmentum of the peduncles, can explain the hemichorea.

Kahler and Pick's view is supported by cases of Müllendorff, Freret, Henoch and Eisenlohr.

As regards Stephan's theory, it is based on the unstable ground that all motor disturbances, as ataxia, intention tremor and hemichorea are disturbances of co-ordination. His claim that such disturbances can only be called forth by lesions of the pyramidal tract on a level with the thalamus, is also untenable. All cases of thalamus lesion, showing hemichorea, also manifest disorders of sensibility and hemiparesis, and it is more difficult to exclude impression through distance of lesions in the thalamus upon the pyramidal tracts than of those in the pons upon the thalamus. Thalamus lesions leaving the pyramidal tracts intact are not accompanied by motor disturbances.

For the further consideration of the subject, Kolish recommends a study of the different divisions of the motor tracts, beginning at the cortex and ending in the medulla oblongata, which experience has shown to be the lowest limit for the production of co-ordinated switching. From the cases and facts presented, he believes to have shown that post or prehemiplegic motor phenomena may be caused as well by lesions affecting the compact pyramidal tracts within the internal capsule, as by such involving the motor tracts in the pedunculus cerebelli.

In conclusion, Kolish cites several published cases,

generally of progressive paralysis, in order to prove his contention that the motor phenomena accompanying such diseases may originate in the cortex and cortical white substance, and he believes that the cases cited show that movements allied to hemichorea and hemiathetosis may be called forth by irritation of the cortex. As most of the cases of hemichorea and hemiathetosis are referable to lesions of the compact pyramidal tract in the internal capsule, the author thinks it unnecessary to present any original cases. That lesions in the medulla may call forth motor disturbance, though possible and probable, has not yet been conclusively shown.

J. C.

Pathological Gaits.—Chr. Leegard, of Christiana, calls attention to the fact that but few of the symptoms of nervous disease can be used more for diagnostic purposes than the gait. To obtain a classification, he divides the various kinds into co-ordinated and inco-ordinated movements. Gaits with co-ordinated movements he calls synergic movements. They are associated with changes in the cortico-muscular system, which connects the cortex with the muscles. This system consists of two parts: The cortico-motor cells with the peripheral nerves and muscles on the other side. In affections of the former the gait is spastic, and in those of the latter is paralytic. After having described their general causes and methods of appearance, he considers the partially paralytic gaits which he has observed. The gluteal gait appears with paralysis of the gluteus maximus. It is seen on attempting to extend the thigh, and is not so soon observed in walking on a level as on ascending an incline when there is an inclination to tire quickly? The patient among other movements steps with difficulty upon a chair or arises himself up when he has reached for something on the floor. In paralysis of the lesser gluteal there, appears a waddling gait, so that in hemipleg, a half sided one-sided affection of these muscles, the patient waddles towards the affected side. The full knee-gait is observed when the both flexors and extensors are paralysed. The knee has then no support, and the patient, to preserve his equilibrium, takes his cane and places it close in near the leg, where it acts as a splint; at the same time he tries to keep even a portion of the body weight from resting on that side. The cane is here held on the affected side, while in the other diseases the cane is carried on the well side. The over extended knee-gait is

seen in the paralysis of the quadriceps femora. In order not to let the knee sink down during walking, the patient places his knee, the center of equilibrium, back of the knee, and when he steps on that foot and over extends that knee on account of the paralysed extensor, a condition called by him steppage is characterized by an equinus position of the foot with dependent toes, and is due to a paralysis of the muscles on the anterior side of the foot, supplied by the pedoneus nerve. In order to prevent the affected toes from dragging on walking, the foot is lifted abnormally high up. Often it is not placed down at once, but is first upon the heel and then the ball of the toes, so that a double sound results. The writer develops his ideas, in short, on the asynergic, non co-ordinated forms of gait. He emphasizes that the cerebral forms, varieties of these ataxies, are essentially different from the spinal. In the former the gait is inco-ordinate as the equilibrium is lost, while in the latter the equilibrium is difficult, as the gait is inco-ordinate.—*Nordiskt Medicinskt Arkiv*, No. 1, 1893.

F. H. P.

PHYSIOLOGICAL.

The Functions of the Sympathetic Ganglia.—

A reply to a criticism by Dr. F. Vas (Hale White, M.D., Brain, Winter, number, 1892).

In the September number of the JOURNAL OF NERVOUS AND MENTAL DISEASES, Dr. Donaldson referred in a critical way to an article on the Structure of the Chromatin in the Sympathetic Ganglion Cell. The author of the article, Dr. F. Vas, considered that the results of his investigation were opposite and contrary to the views which had been advanced by other investigators, and one of them Dr. Hale White has replied to some of his criticisms. White believes that some of the sympathetic ganglia, especially the superior cervical ganglion, in adult men are functionless organs and are the remnants of structures having important functions in the lower animals. He bases his conclusion on the results of a large number of examinations made on man and the lower animals. For instance, the superior cervical ganglia taken from forty-nine adult human beings were examined. Of these only one showed entirely normal nerve cells. In the others the cells were more or less shrunken, non-nucleated, granular and irregular in outline.

Vas objects that these conditions of the cells should

not be taken as evidence that they are a degenerate type of cell, and says that White allows that sometimes nerve cells which show all these changes are nevertheless functionally active. White admits that he cannot entirely interpret the meaning of the pigmentation, but decides that cells showing the changes previously mentioned, can be functionally active. He contends that when but a few cells in any ganglion show these changes, the great portion of the ganglion is normal, the only functionless part of it being the few degenerate cells. The activity of the ganglion is only beginning to die out. White, likewise, denies the statement attributed to him by Vas, that the sympathetic ganglia are embryonal remains. He merely maintains that those ganglia which in adult man show degenerate cells, for example, the superior cervical, are atrophied degenerate organs. In reply to a second question by Vas, how is it possible that, if in the human adult the superior cervical ganglia have lost their function, those of the thorax in organic connection with them have maintained theirs, the fact is advanced that the ganglia in these two locations subserve entirely different functions, and there is, therefore, no valid reason why one should not degenerate without the companionship of the other. The fact that ganglia do not show evidences of fatty degeneration, White holds to mean nothing, as a number of degenerate organs in man show no fatty degeneration. Nor does he consider the shrinking of the cells in the degenerate ganglia to be due to the method of preparation or dependent on after-sclerosis of blood vessels. If it were so, this artificial shrinking should be as manifest in one ganglion as in another. White emphasizes that he does not consider mere pigmentation as evidence of degeneration, an imputation that Vas attributes to him. Regarding the statement made by Vas, that if the nerve cells of the superior cervical ganglion in man are atrophic degenerate structures, one ought by cutting the nerves either side of the ganglion, to be able, in rabbits, to cause the ganglion cells to have a similar appearance to that which White describes as the atrophic condition in man. White maintains that the tenets of such an argument are entirely illogical, and that it would be as reasonable to expect that the tail of a long-tailed monkey should shrink to the size of the coccyx of an adult man in a few days after the nerves going to the tail had been severed. In conclusion, White maintains the views that he has previously advanced, as to the meaning of the sympathetic ganglia in adult man. J. C.

Society Reports.

NEW YORK NEUROLOGICAL SOCIETY.

*Stated Meeting, held at the New York Academy of Medicine,
Tuesday evening, December 5th, 1893.*

Dr. M. ALLEN STARR, President, in the Chair.

Dr. L. STIEGLITZ presented a patient, a young man aged twenty-four years, who three years ago developed a swelling in the right sub-maxillary region. This disappeared in about three weeks and was replaced by atrophic tissue, a scleroderma. About six months ago the patient began to suffer from spasmodic contractions of the right masseter and platysma muscles, which still continue. The speaker said he did not believe that the scleroderma and the spasmodic muscular contractions were due to a common cause, although that is possible. He is rather inclined to think that the contractions are due to reflex irritation.

GLIO-SARCOMA OF THE BASAL GANGLIA.

Dr. FREDERICK PETERSON presented this specimen. The case was that of a man aged fifty years, who had been in excellent health, with the exception of occasional attacks of vertigo and slight headaches, until June 8th, 1893, when he fell to the floor in his office. He had a general convulsion and was unconscious ten hours. In two weeks he was well enough to return to his office from his home in New Jersey, and to continue at work for five days, when headache and malaise kept him at home. Four weeks after his first convulsion he had five or six more of short duration and rather left-sided in character. At this time he presented the following symptoms: Left hemiparesis and hemianæsthesia; left hemianopsia; tendency to somnolence; pupils equal and small; sometimes delirious; great frontal headache; pulse 52° to 60° per minute; respirations slow; slight optic neuritis. The diagnosis of sarcoma or glioma

situated deep in the brain, so as to affect the posterior limb of the right internal capsule was made. An operation was out of the question. The man was unconscious during the last three days of life. At the autopsy, made just five months after the first apparant onset of symptoms, a glio-sarcoma was found, about two inches in diameter, occupying the region of the basal ganglia, especially posteriorly, and projecting upwards into the right lateral ventricle, and downwards somewhat into the right crus. It was not strictly demarcated, and there was some infiltration into the white matter of the brain, with here and there some areas of softened brain tissue. A secondary tumor, the size of an almond, was found attached to the dura mater on the right side, compressing the cortex in the region of the angular gyrus.

A CASE OF INFANTILE CEREBRAL SPASTIC DIPLEGIA.

Dr. PETERSON also presented the fresh brain in this case. The patient was a female infant, aged twenty months, with congenital diplegia; that is, spastic paralysis of all four extremities. The child was subject to convulsions, had enormously exaggerated knee-jerks and ankle-clonus. Its head was exceedingly small. At the autopsy the skull bones were found to be considerably thickened and all the sutures and fontanelles closed and united. The dura was very thick. There was no increased amount of sub-dural fluid. Over each hemisphere a large group of convolutions, including especially the motor area, were found wanting. The vacuum caused by this atrophy was filled partly by sub-dural fluid and partly by the bulging of each ventricle; there was no internal hydrocephalus. There was no communication between the ventricles and the exterior of the hemispheres. A microscopical examination of the spinal cord showed degeneration and atrophy in the lateral columns.

CHRONIC HYDROCEPHALUS WITHOUT A CEREBRUM.

This specimen was also presented by Dr. PETERSON. The case was one of a female infant, aged eighteen months. Little could be learned of its early history. It

had a large head with widely gaping fontanelles. The child was blind and had nystagmus. There was rigidity of all four extremities, occasional convulsions (the convulsions, Dr. Peterson said, he had not personally observed), and toward the last, opisthotonus. The child often cried out at night. Speaking to or moving it caused it to cry out. The pulse was rapid and feeble. Lungs normal. The urine contained a slight trace of albumin. No trouble with the bladder or rectal sphincters. The child could not nurse and was fed with a dropper. It died suddenly in a convulsion. The temperature never rose above 98 F. while it was under observation. Toward the last it vomited occasionally after feeding. At the autopsy sixty-four ounces of reddish serum was first removed by tapping at the anterior fontanelle. The skull was very thin. Also the dura. The falx cerebri had disappeared. At the base of the brain there stood out prominently the basal ganglia and the floors of the lateral ventricles widely open. The cerebellum appeared to be of normal size. There was a mere vestige of each hemisphere. There was degeneration and atrophy of the lateral columns of the cord.

A CASE OF SUBACUTE UNILATERAL BULBAR PALSY, WITH AUTOPSY.

By Dr. ALFRED WIENER. The patient was a young man aged seventeen years. Family history negative with respect to any hereditary nervous trouble. Patient has always been in good health up to two years ago, when he was taken down with a severe attack of perityphlitis, from which he recovered after five weeks of illness. About two years ago last spring the glands on both side of his neck in the region of the stern-cleido-mastoid muscles began to enlarge. In the summer of the following year, 1892, an abscess formed in one of these glands and had to be opened. In August, 1892, the glands on the right side, together with a large portion of the sternocleido-mastoid muscle were excised at Mt. Sinai Hospital. A second operation was performed the following month, and the glands on the left side were removed. These were found to be of tubercular nature. The patient rapidly recovered, and nothing was noticed in the way of any disturbance of the parts which might have been involved in the operation. In November, 1892, it was discovered that the patient's tongue deviated to the right side, and

shortly after this he experienced some difficulty in swallowing. He soon became hoarse and coughed with difficulty, and within a space of ten days the patient developed a complete unilateral palsy of the right side of his tongue, soft palate, pharynx and right recurrent laryngeal nerve. There was no disturbance of his respiratory or cardiac organs, or other condition present which should have called attention to an affection of any other cranial or spinal nerves excepting the ninth, tenth, eleventh and twelfth. The symptoms remained stationary for a time; then the patient began to grow very much weaker, and suddenly, on March 26, 1893, he had an attack of respiratory failure. From this he partially recovered, and then continued in a condition of slight respiratory difficulty. He could hardly speak above a whisper. He had excessive salivation. On April 11th he could barely protrude his tongue beyond the edge of his teeth. His lips remained normal and could be brought into perfect apposition. The palate and pharynx remained normal on the left side. On April 20th he had another attack of respiratory failure which proved fatal.

The autopsy, made six hours after death, revealed that the motor cortex, internal capsule, crura cerebri and pons were normal. The nucleus of the twelfth nerve on the right side was much diseased, while on the left side it was diseased to a slight degree. The nuclei of the ninth, tenth and eleventh nerves were slightly affected, a little more on the right side than on the left. The respiratory bundle appeared completely degenerated on the right side, while on the left, in the region of the hypoglossal nucleus, its lower and anterior portions were diseased. In the region of the ninth nerve a few fibres were affected. The intramedullary rests of the ninth, vagus and vago-accessorium and hypoglossal nerves were less prominent on the right side than on the left. Otherwise, everything appeared to be perfectly natural up to the exit of the first cervical nerve in the spinal cord. As regards the nature of the lesion, no tubercle was found, as expected, nor were tubercle bacilli found on microscopical examination. There was simply an atrophy of the ganglion cells and fibres motor in function.

From a careful consideration of the preceding case and autopsy, Dr. Wiener drew the following conclusions:

1. That the region of the hypoglossal nucleus gives origin to nerve fibres which supply the tongue, palate, pharynx and larynx on one side of the body.

2. The column of nerve fibres known as the respiratory bundle consists of fibres from the glosso-pharyngeal, vagus and vago-accessorium nerves, and the lower and anterior portion of this column probably serves as the locality for the vagus and vago-accessorium fibres.

3. That the glosso-pharyngeal nerve seems to control the reflexes of nausea and gagging in the soft palate and pharynx, and also to send some of the motor filaments to the pharyngeal muscles. These latter filaments take their origin in the hypoglossal nucleus, and ascend in the respiratory column to the nucleus proper and then make their exit with the glosso-pharyngeal nerve.

4. That the soft palate muscles are not innervated by fibres from the seventh nerve.

THE PONS-MEDULLA FLOCCULUS TRIANGLE AS A TUMOR SITE, WITH PATHOLOGICAL FINDINGS.

Dr. ROBERT SAFFORD NEWTON read a paper on this subject, which he illustrated by the following case: Female; aged twenty-eight years. She entered St. Mary's Hospital July 10th, 1893, complaining of a constant headache for a fortnight, with morning vomiting and sickness for seven days. No history of any trauma; no specific history; family history negative. Two days after admission she was examined, and apart from a silly manner and a slight drawling in her speech she presented no symptoms. On July 20th the patient became weak and fell to the floor in walking.

She muttered to herself during the night and moaned about her head. The pain appeared to be diffuse. She was dull and stupid; her speech was prolonged and tedious. She kept asking, "What did you say?" as though she did not hear well. There was no defect of the cranial nerves. Pulse, 45° per minute. She had a shuffling walk with some tendency to go to the right. The superficial reflexes were present. The knee-jerk was increasing on the right side. On July 22d the patient became quite deaf. The headache was very violent, keeping her awake. July 24th: patient very feeble; deafness marked, especially in the left ear; no tenderness nor discharge. The patient stated that she could not see well, but the ophthalmoscope showed no marked lesions. Upon standing, she is projected to the right very forcibly. The movement is at each trial accompanied by a look c'

fear, paling of the face, dilatation of the pupils and bathing of the surface in cold perspiration.

From this time on the patient failed rapidly. The sight became worse; the patient grew petulant and childish; her appetite remained fairly good. Nystagmus was present for one day only. The external rectus was also temporarily affected. She had a transient facial tic. The sense of smell was present to the last. Optic neuritis first appeared in the right eye, then in the left, and rapidly went on into total blindness. She also became totally deaf. Her taste sense was not appreciably affected, although she occasionally complained of a hot scalding feeling in the back of the tongue and palate. Her pulse was slow from the beginning; towards the last it dropped as low as ten, twelve and fourteen beats to the minute, and three days before her death it dropped to six beats per minute. There was no anæsthesia, nor implication of the pain, temperature, tactile or muscular senses. She never had any convulsive seizures or paralytic attacks. The weakness steadily progressed; there was loss of control of the sphincters; the respirations became slow and gradually ceased. Just before her death she was still able to distinguish between whiskey and milk.

The autopsy was made ten hours after death. Upon removing the brain, an enormous tumor with a central projection was found on the left side. The swelling was somewhat triangular; its apex was under the thalamus and geniculate body, its base crowding the cerebellum off from the medulla, and its side line not quite reaching the middle of the pons. In the central pons region was a projecting mass, shaped like a thumb. The bulk of the growth was a cyst. The left half of the pons was much softened, and the medulla and cerebellum were flattened.

The olfactory nerve was intact. The optic nerve was swollen on the left side. The third and fourth nerves were intact. The fifth and sixth also seem to have remained unchanged. The seventh nerve was on one side of the tumor; the eighth on the other. The nuclei of the ninth, tenth and eleventh nerves were pushed aside by the change in position of the flow of the medulla. The nucleus of the twelfth nerve was entangled in the growth. The cyst began at the margin of the fourth ventricle, by a blocking of the channel of communication between the lateral cisternæ of the ventricle and the cavity of the arachnoid. Just at the commencement of the fourth

ventricle is an opening through the velum medullare posticum, which leads from the outside into the ventricular cavity the foramen of Magendie. Through this the fluid in the ventricles communicates with that which lies outside. The importance of this location by the side of the medulla and partly covered by the flocculus will be appreciated when we remember that the entire communication of the subarachnoid spaces of the spinal cord below with the ventricles of the brain above is by means of this foramen of Magendie, an opening into the lower part of the fourth ventricle, through the pial expansion of the tela choroidea inferior, which covers the ventricle, and through the apertures of the lateral cisternæ, one on each side behind the upper roots of the glosso-pharyngeal nerve, in the pouch-like extension of the membrane beneath the flocculus.

These spaces or reservoirs of the sub-arachnoid fluid have been studied by a number of authors, yet no special importance seems to have been attached to this locality. In examining the floor of the fourth ventricle it will be seen that at its broadest part there exists an elongation on each side known as the lateral cisternæ; these are in communication with the subarachnoid spaces on each side and are in intimate relationship with the flocculus, glosso-pharyngeal, vagi, facial and auditory nerves. Hence these openings through the medulla may be the site of several pathological changes, as follows:

1. By means of the choroid plexus, cystic growths and deposits of carbonate or phosphate of lime; the so-called brain sand or psammoma.

2. Tortuosities and changes in the choroids lead to dilatation and enlarged villi.

3. Tumor growths consisting largely of fibrous elements.

A careful study of this region will show how easily a cystic growth can be developed there, and what an enormous size it may attain and what numerous tissues and parts may be invaded without necessarily giving rise to any localized symptoms.

SYRINGO-MYELIA; CENTRAL GLIOMA OF THE SPINAL CORD, WITH SPONTANEOUS CENTRAL HEMORRHAGE.

Dr. CHARLES L. DANA read a paper on this subject, and narrated the history of the following case: The

patient was a man who had a central gliomatous tumor in the lower part of the dorsal region of the spinal cord. This tumor progressed slowly for two or three years, causing during that time the symptoms of a transverse myelitis chiefly, although the presence of a spinal tumor was suspected. Among other symptoms there was anæsthesia of the right leg extending up to the twelfth dorsal spine, and involving touch, temperature and pain sensations. Anæsthesia involved to a lesser extent the left leg. Just before the man's death a large hemorrhage occurred which was confined to the centre of the spinal cord and which caused exquisite pain, the man, in fact, dying from exhaustion. Upon post-mortem examination a large central hemorrhage, destroying nearly every particle of the spinal cord at the level of the seventh dorsal segment, was found. This hemorrhage extended up and down for a distance of about three inches. Around the hemorrhage and above it were evidences of a gliomatous infiltration involving nearly the whole of the transverse area of the cord at that level. Very striking secondary degenerations, ascending and descending, were found. The case was one of glioma of the spinal cord, without there being any cavity formed. Although clinically, and in one sense pathologically it would be a case of syringo-myelia, yet that name cannot strictly be applied to it.

In commenting on this case, Dr. Dana referred to the question of the existence or the non-existence of a pain tract, and the advisability of our searching for it. The psychologists seem to have come to the conclusion that pain is not a sensation, but a form of feeling; that it is not to be classed with the sensations of touch or temperature or heat; that it does not have peripheral end organs, and that there are no nerves in existence which on irritation alone produce pain; that there is no such thing as a pain tract; that in attempting to locate such a tract we are pursuing a will-o-wisp. Dr. Dana said that after a very careful study of this question, he has been converted to the psychologists' view of the matter. If we claim that there is a special tract for pain, we can just as well claim that there is one for hunger and various other sensations. If there is a special tract for any of the common subjective sensations, there must be a special tract for all.

Dr. B. SACHS said that in former days he held to the view that pain was nothing more than an intensification of the ordinary tactile sense, and in the majority of cases

we meet with such an explanation would hold good, and under such condition we would not look for any special pain tracts. The clinical facts that have been brought out with regard to syringo-myelia, however, do not bear that theory. Touch and temperature sense may remain normal, whereas the pain sense is entirely lost. The psychologists' view of this question is one that is rather difficult to reconcile with the clinical facts we have obtained from syringo-myelia. On the other hand, this disease is very destructive and irregular in its course, and for this reason is rather an unsafe guide for us to go by in trying to determine physiological functions.

Dr. C. A. HERTER said that several years ago he hemisected the spinal cord of a monkey in the mid-dorsal region; he was unable to find in that case any evidence of a loss of sensibility to pain either on the same side as the lesion, or on the opposite side. He also performed this experiment on an opossum with a like result. Mott, in his experiments, cut the antero-lateral ascending tract and was unable to find any evidence of loss of sensibility to pain. The results of experiments on animals, of course, cannot be applied directly to man. The subject brought up by Dr. Dana is an interesting one, and up to the present time we have not enough cases on hand to base any definite conclusions upon.

Dr. LANDON CARTER GRAY said that in our present state of knowledge as regards the exact functions of the various columns of the cord—the columns of Burdach and of Goll, and the so-called column of Gowers—and the uncertainty that exists as to the exact demarcation of the latter, we can arrive at no definite conclusions as to the location of the pain tract. So far as clinical evidence goes, there certainly is such a thing as a pain sense. In hysteria the tactile sense may be preserved, while the pain sense is entirely absent.

Dr. STARR said we must admit the existence of pain sensations and of a centripetal pain tract. That tract must necessarily go in through the posterior nerve roots, because we have painful sensations of a hallucinatory character in locomotor ataxia. It must extend for a distance in the central gray matter of the cord. We have now on record over seventy cases of syringo-myelia, with autopsies. In those cases there is a decided loss of pain in a certain limb. If the affected limb is an arm, then the cavity in the cord is in the cervical region, and the pain sense is preserved in the body and legs. There-

fore, these sensations, though they may pass for a little distance in the central gray matter of the cord, afterward pass into the white columns. The central grey matter contains numerous cells, each of which sends its fibres into the antero-lateral columns, and these pass upwards. While it is by no means positive that the antero-lateral columns transmit sensation of pain, all the facts seem to point to the correctness of that theory. Dr. Starr said that the column of Lissauer, which one of the speakers referred to, could have nothing to do with the transmission of pain sensations. It consists only of short fibres, does not increase in size from below upward, and cannot transmit impulses upwards for any great distance. The sense of hunger is by no means analogous to the sense of pain, as Dr. Dana intimated. We must distinguish between a common sensation and a special sensation. In conclusion, Dr. Starr referred to a case reported by Edinger, with autopsy, in which the lesion was found in the parietal region on one side, and in which the symptoms were chiefly those of intense pain radiating in the opposite side of the body. Edinger described it as a case of central lesion, with sense of pain.

Dr. DANA then closed the discussion. He said that his views regarding the non-existence of a pain tract were only arrived at after a long and thorough study of this subject. When we come to mix up pain sense and touch sense add heat sense, etc., we are showing a mental confusion that is unworthy of advanced neurologists. Pain and touch are entirely different. Pain is a subjective or common sensation. Touch is objective. Pain is much more closely allied to hunger than it is to touch. Pain is not a special sensation, but a modification of it. We may have a painful pricked wound, etc., but we do not have a simple sensation of pain. It is always combined with something else. If we can get rid of the idea that we must keep on hunting for a pain tract, it will save much exertion, and many futile experiments on monkeys and men.

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Original Articles.

ARE THERE SPECIAL NERVES FOR PAIN?

By HENRY RUTGERS MARSHALL,

New York.

ALL psychologists to-day acknowledge the importance of neurological investigations as bearing upon their science. They feel that they can take no step without enquiring whether the results reached by introspection accord with the facts recorded by students of nerve physiology and histology; and this, because they acknowledge that there is a correspondence between nervous activities, and effects in consciousness.

But if there be any force whatever in the argument for the thorough-going coincidence of psychic and neural phenomena, investigators in psycho-physics on their part must also take into account the records of introspective psychology.¹

It is with hope that I may bring some help from psychology to aid our tireless neurologists that I venture to address the readers of this journal.²

Sensations are mental states determined by action

¹ Cf. John Stuart Mill, *Logic*. Bk. vi., chapter iv., end of § 2.

² The arguments presented here were outlined in an article published by me in *Mind* in October, 1889, and more nearly as here presented in the *Philosophical Review*, Vol. i: 6. The full argument will appear in my book on "Pleasure, Pain and Aesthetics," now in press, with much corroborative evidence from the psychological side, which in the nature of the case cannot be given here.

upon our nervous system from without: in the cases which are most easily studied the nerve terminals are differentiated to react to special forms of stimulus; these terminals being localized in the well recognized sense organs, the eye, ear, nose, skin, etc.

The sensations due to action within the organism are also doubtless referable to the direct stimulation of the nerves from sources without themselves, although within the body as a whole.

Now it happens that in ordinary life the same general kind of stimuli that produce sensations, under certain conditions produce also painfulness, and thus, not unnaturally, pains are not infrequently carelessly spoken of as sensations. It having been taken for granted that pains are sensations, neurologists have been led to undertake certain most laborious investigations, having in view the isolation of nerve tracts for pain and their terminals, and the localization of a pain "centre" in the brain.

I shall endeavor here to show; first, that the weight of psychological evidence is strongly negative to a classification of pain with sensation; and second, that the arguments brought forward in support of such a classification, and of the existence of brain localization and of nerve tracts and terminals for pain, are not crucial.

I.

Let us first consider some logical and psychological objections to the classification of pain with sensations.

1. The differentiations of the typical sensations seem to be related to differences of environmental action upon us. The eye mediates ethereal vibrations. The ear tells of air waves. Heat and cold terminals react to molecular vibrations. Taste probably deals with chemical reactions. But pains are not determined by any such special relation to our environment.

This fact in itself surely renders the sensational classification improper on purely logical grounds.

2. Pleasure and pain have been treated in relation by masters of thought from the earliest times. This weight

of authority cannot properly be ignored: such a full expression of the observation of mental states by thoughtful men is clearly a datum of psychology which cannot be passed over by any scientific man in the consideration of this subject.

Under such conditions it would seem that where pain is classed, there pleasure should be classed also.

Pleasure, however, is not naturally looked upon, or spoken of, as a sensation, but is more often relegated to the region of emotion.³

Since evidence has appeared that the sensations of heat and cold, which are held in relation, have specific nerve terminals, the fact of the relation between pleasure and pain would be less of an objection to the sensational view were it not for the fact that while the discovery of pain nerves has been claimed by some observers, there is not the slightest indication of the existence of pleasure nerves. This failure casts doubt upon the claim as to pain nerves, the existence of which, as we shall presently see, is denied by equally authoritative observers; for surely if the pain nerves are isolated, we should expect to find some evidence of these related pleasure nerves.

3. But the difficulty here presented becomes more marked when we consider the matter of brain locus. There is some ground for the notion that a locus has been found in the cortex for the pains of *cutting-pricking-laceration*, although this can scarcely be said to have been established.⁴ On the other hand, there is not the faint-

³ The weakness of the argument for classifying pain as a sensation without classifying pleasure in the same way, has appealed strongly to M. Bourdon, who, in a late number of the *Revue Philosophique* (xviii. 9), has been led thus to attempt *an identification of pleasure with an already recognized sensation*. He suggests the extraordinary hypothesis that pleasure is a sensation of diffused tickling. He does not claim, however, to support his thesis with formidable arguments, or in fact with any evidence of force.

⁴ The evidence, indeed, is so contradictory that it has appeared quite possible to hold, as has been done by F. Courmont in his late work, "*Le Cervelet et ses Fonctions*," that the cerebellum is the seat of all pleasure and pain activities, and those connected with the emotions.

est indication, to my knowledge, of the existence of a pleasure centre in the brain. This, again, evidently casts much doubt upon the claim that a pain centre has been discovered and seems to indicate that the so-called "pain centre," if its existence be verified, will probably be found to be the centre for the sensations involved in cutting and pricking, which, under the experimenter's methods, have been stimulated in painful phase. Surely, if pleasure and pain are sensations, developed probably early, perhaps earlier than any others, in the history of our race, we ought to be able to identify in the cortex the centres of their coincident activities, as we have done those of many of the other senses; or else some adequate explanation should be forthcoming for their non-appearance.'

Pleasure and pain show characteristics which are not noticeable in the generally recognized sensations.

4. Each of the typical sensations has a very special means of production by which it, and it only, is brought into consciousness. None of them has the characteristic which is observable in pleasure-pain, of being aroused by the widest range of psychic occurrences.

Sensations are pleasurable and painful. Pains, indeed, as we see, are so closely related to sensations that an attempt is made to bring them together in classification.

But *emotions* also are pre-eminently pleasure-pain colored. Pleasure is, in common parlance, spoken of as an emotion; and emotions are usually treated by English psychologists together with pleasure and pain.

Intellectual pleasures and *intellectual* pains, again, are well known to all thoughtful people.

Certainly we have here phenomena very different from anything noticeable with the recognized sensations. We never, for instance, have a cold thought as we have a painful thought or a sonorous emotion as we have a pleasurable emotion.'

5. Under continuation of stimulative conditions, the typical sensations do not habitually change from one

form to another. A definite stimulus does not habitually alter from a pressure into a sound, nor from a sound into a brightness. But under continuation of stimulative conditions, pleasure *habitually* fades into pain, although there are some relatively few exceptions, probably traceable, as I have elsewhere argued, to alterations in the system which really bring about a change in what *appear* to be continuous stimulative conditions.

6. Again, in the case of ordinary sensations, within the limits of normal activity, increasing or diminishing intensity of physical stimulation bring corresponding alterations of psychic activity, although the relation is complex and not simple. But with pleasure-pain the case is quite different. An increase of intensity of stimulus often at first increases a pleasure, then decreases it, then produces an increasing painfulness,—a series of which we have no counterpart in sensational experience.

7. The alterations of pleasure-pain phase which are observed in connection with identical stimuli at different times are apparently incompatible with the sensational hypothesis. Hypernormal activity in any special direction often produces pleasure at one moment and pain at another, the change occurring often within narrow time limits. Are we to suppose that under certain conditions the pain-sense organs are affected by a given stimulus and the pleasure organs not, while under some mysteri-

¹ Cf. Lehmann *Der Hauptgesetze d. menschlichen Gefühlsleben*, p. 159. ff

² Wundt, in a late study (Phil. Stud., Bd. VI., Hft. III., p. 359), states the relation thus: "Ein Unterschied freilich bleibt zwischen Gefühl und Empfindung, der auf wesentlich andere Bedingungen des ersteren hinweist. Die Empfindung ist nicht nur selbst ein einfaches, unzerlegbares Element unseres Bewusstseins, sondern auch ihre Entstehungsbedingungen sind relativ einfache, beruhend auf bestimmten psycho-physischen Organisationsverhältnissen, die bei den verschiedenen Empfindungen als wesentlich übereinstimmende erscheinen. Ganz anders das Gefühl. Von dem sinnlichen Gefühl an, welches unter ähnlich einfachen Bedingungen zu stehen scheint wie die Empfindung, bis zu den höheren intellectuellen Gefühlen bietet sich hier eine Stufenreihe höchst mannigfaltiger und immer verwickelter sich gestaltender psychologischer Entstehungsbedingungen."

ous altered conditions *with the same stimulus* the pain organs become quiescent and those for pleasure become active? We surely are in a position to ask for some explanation of this mode of stimulation so different from that found with other senses. Again, activities which are uniformly disagreeable when first experienced, if not too extreme or too long continued or too often stimulated, *ordinarily* become gradually less disagreeable and finally may be productive of pleasures. This process is commonly described as the "acquisition of tastes." The only explanation of these phenomena in terms of the sensational theory would seem to be that pain nerves become separated from activities or cease to act when the latter function, and that pleasure nerves begin to become connected with the same activities. But what has kept these pleasure nerves from atrophy during the long periods they have been inactive? And after the new connection of the activities with pleasure, why do not the pain nerves suffer atrophy, as they certainly do not? For, we find, for instance, that the man who walks little may find the action of his muscles on a *five-mile* walk very painful, but if he persevere he may come to find that definite amount of action in those muscles enjoyable and regularly required for his comfort. If, some day, however, he use these muscles in a *twenty-mile* walk, he will find that his capacity for pain in them has not disappeared. The hypothetical pain nerves have not become in the least disabled by disuse. How does it happen that for year after year we live on with practically no consciousness whatever of the existence of our intestines, until some day an irritant gives us excruciating pain? Have these supposititious pain nerves been lying dormant for so long, and yet actually [gaining capacity to act with vigor, instead of becoming atrophied as other organs do?

Cases like this and the one immediately preceding it have led to the suggestion that a certain width of stimulation may be necessary to bring the pain nerves into action. If we accept this notion, we are confronted with

the further difficulty that those of our activities which occur after rest are most vivid and widely effective, and yet are our most pleasurable experiences. The very same conditions which are held to bring about the stimulation of pain nerves, here seem to be productive of pleasure. How is it that the man who is well-rested and vigorous in health finds it difficult to experience pain, although he is more active than the average man? How is it, on the other hand, that the gentlest stimulus is painful to one who is exhausted by illness or who is thoroughly weary?

So much for pain. What can be the special conditions which determine the stimulation of the supposititious pleasure nerves has not yet, I believe, been even suggested.

These objections to the sensational hypothesis seem to me to be weighty enough to lead us to re-examine with care the arguments that have been presented in favor of the view.

II.

8. In the experiments commonly made in the laboratory, it is found that electrical and direct mechanical stimulations of nerve trunks, or of their terminals in certain spots, give pain, but that no sort of manipulation of these stimulations which has been tried has brought pleasure, as might be expected from the close relation of pleasure and pain which is generally acknowledged. From this it is argued that, as pleasure cannot be obtained by the activities of the nerves in question and as pain can be, there must be specific nerves for pain. But it seems to me that we may argue from the facts to a quite different conclusion, *viz.*: that the nature of the electrical or mechanical stimulus applied is such that it is always productive of the conditions of pain, and that therefore pleasure cannot be reached through the activity of these particular nerve trunks or terminals *unless they be stimulated by other less abnormal methods than those thus far adopted by the experimenter.* This view is strength-

ened by evidence which we have that certain nerves have a very limited capacity for action under the conditions which make pleasure production possible. In certain directions we must have a *summation* of gentle stimulations if pleasure is to be noticed. The delicious softness of down and the agreeable smoothness of satin cannot be appreciated unless broad surfaces are affected at one time. It is even possible, indeed, that certain sensational nerves may be *practically* incapable of reacting under the conditions which pleasure implies. Surely from these facts we gain no convincing argument in favor of specific pain nerves.

Under the view that I have above suggested there is no difficulty in accounting for the fact that the inner organs, of which we are nearly or entirely unconscious in normal health and do not recognize pleasurably, still are productive of pain under the abnormal conditions of disease or under the artificial stimulations of the investigator; and the argument⁷ from these facts also loses its force.

9. It is held that certain nerve trunks, when excessively stimulated by the methods open to the experimenter, do not give pain. This, it is claimed, shows that there is no capacity to produce pain in the organs which have been stimulated. The claim is too wide, however; for, granting the facts, all that is really shown is that nerves which would give pain under the experimental conditions are separate from the trunks which the stimulation reaches. It is not clear, however, that the facts are to be conceded. Evidence cannot be felt to be decisive by the advocates of the view which it is supposed to corroborate, if they think it is necessary to state it as hesitatingly as they do.⁸ I think the argument cannot, on any ground, be considered a very satisfactory one when we consider the great difficulties attending the

⁷ Cf. Goldscheider, *Archiv f. Anatomie u. Physiologie (Physio. Ab.)*, 1885, p. 341.

⁸ Cf., for instance, Nichols, *Origin of Pleasure and Pain (Phil. Rev. I.)* p. 407, i. 17, i. 23; p. 417, i. 21.

production of the artificial and delicate stimulations relied upon, and the greater difficulty of obtaining these results in subjects whose tale of absence of pain can be considered scientifically conclusive.

10. It is shown that where one operation brings both touch (*e. g.*) and pain, in many cases the pain arises distinctly *after* the touch, etc. So far as the statement is true for normal subjects, the facts certainly here argue that separate sets of organs have been stimulated successively. The possibility is not precluded, however, of there being in such cases a certain sensation other than the pain, to which this pain belongs, which sensation follows the sensation of touch, etc. In other words, it is quite possible to argue from the observed facts that *touch* is followed by sensation X in a painful phase.

As Lehmann says,⁹ it appears "dass ein Gefühlston, dieser sei nun Lust oder Unlust, nie von einer wenn noch so schwachen Empfindung isoliert vorkommt, und dass man in allen solchen Fällen, wo man eine Sonderung beobachtet zu haben meint, das Empfindungselement nur übersehen hat."

What has seemed to be the clearest piece of evidence of separateness in this connection loses its force under closer study. It has been often noted that a person touching a very hot body, distinctly feels the touch first, and afterwards feels the pain produced by the burning.

Lehmann,¹⁰ however, has shown that the reaction time for warmth is much longer than that for pressure, and that therefore we should *expect* that a person touching a very hot body would feel the painless touch before the painful burning.

When one presses a needle into the skin, the touch sensation may precede the pricking pain; but this may result from the fact that certain other nerve elements than those of touch are affected after the needle has pierced the skin, namely, those which bring about the

⁹ *Der Hauptgesetze d. menschlichen Gefühlsleben*, p. 33.

¹⁰ *Op. cit.* pp. 44, 45, Lehmann's whole argument in this connection is well worth reading, and is, in my opinion, conclusive.

pricking sensation. I am perfectly willing to believe, indeed, that a set of nerves and nerve terminals other than those affected by action upon the surface organs of pressure, heat, and cold, may be discovered, and that we shall find them to be brought into action by rupture of the surface, by laceration, by cutting, by piercing; and I think it will be allowed as *possible* that the action of these nerves under the conditions involved in the usual experiment must always be painful; but there is here surely no crucial argument to show that specific pain nerves have been discovered. In those morbid cases where several seconds elapse after the sensations of touch and cold are felt before the pricking pain arises, we may surmise that some disturbance has occurred which has delayed the action of the nerves affected by the laceration or cutting or pricking of painful degree. Such restrictions of activities we find in the other recognized sensations.

The facts of *analgesia* which have been held to tell in favor of the existence of special pain nerves may also be found to be explicable in some similar manner. We may interpret the observed results to mean that the capacity to experience one form of sensation (*e. g.* cutting, pricking), in certain parts of the body may be cut off, together with the capacity for pain-giving which goes with it, without cutting off in the same parts the capacity to experience other sensations (*e. g.* those of pressure, heat, cold) with their capacity for pain-giving.

11. Schiff and his followers have been led to argue for special pain paths in the spinal cord, by the observation that under certain morbid pathological conditions or by the use of anæsthetics all the generally-recognized senses may be lost to the lower extremities, whilst the pains produced by pricking or cutting remain. But, as in the case preceding this, it certainly is possible to argue from these observations that the other sensations are cut off, leaving only the sensation of pricking-cutting, which is always stimulated painfully under the methods adopted by the experimenters.

Wundt (Phy. Psy. 3d edition, p. 114), has pointed out that the facts as we have them do not necessarily imply the existence of distinct transmissive fibres for pain separate from those of the generally recognized sensations. Cf. also Theo. Lipps *Grund d. Seelen lebens*, pp. 202 205, 206. Mantegazza, in his *Physiologie de la Douleur* (chap. x.), after carefully going over the disputed ground finds it necessary to acknowledge (notwithstanding a strong personal inclination to the contrary view) that science to-day does *not* admit the isolation of any special fibres for the transmission of pain.

Mr. B. I. Gilman, in his late article on "Pain and Pleasure" (*Am. Jour. of Psy.*, vi., 1, p. 20), says: "Vulpian finds the hypothesis of special nerves of pain untenable (Deschambe's Dict. des Sciences Medicales Art. Phys. de la Moelle Epiniere, p. 420), and the evidence of their existence is at least insufficient according to Beaunis (Sensations Interne, p. 210, f. cf. Kulpe "Zur theorie der Sinnlichen Gefuhle," Vier. für. Wiss. Phil., XI. 4, 187, ch. ii., § 2)."

12. Finally, we have the argument from the important experiments made by Goldscheider, in which it is claimed that he has isolated pain nerves and terminals. Goldscheider's early experiments led him to the important discovery of pressure spots, cold spots, heat spots, in the skin surfaces, but did not lead him to believe that his observations told of pain spots; later—led doubtless by his interest in the theory of *specific energies*—he came to the conclusion that the evidence did speak in favor of pain spots also.¹¹ The article declaring for this latter position was published in 1885. Since then he has made many investigations, but principally in relation to the pressure, heat, and cold spots. His words have often implicitly denied the theory of specific pain nerves; but this may be passed over.¹² In the same year, 1885, Blix published in the *Zeitschrift für Biologie* a series of obser-

¹¹ Cf. *Archiv. f. Anatomie u. Physiologie (Physio. Ab.)*, 1885, Sup. p. 87.

¹² Cf., for instance, *op. cit.* p. 345; also Sup. pp. 19, 88; also his later discussion in Dubois Reymond's *Archiv.*, 1891, p. 164.

vations and a discussion covering the same general ground, and his conclusion is that "there are three specific kinds of nerve apparatus in the skin, one for heat, one for cold, and one for pressure. For the sense of pain there are no specific organs proven in the skin" (vol. xxi., p. 160). It does not seem to me that there has ever been sufficient ground for holding that Goldscheider's results are conclusive. Wundt, in rewriting his *Physiologische Psychologie* for the third edition, has recognized Goldscheider's discoveries in relation to the heat, cold, and pressure spots, but he does not agree that he has proven his case with reference to pain." Professor Ladd, in his late *Elements of Physiological Psychology*,¹³ seems more inclined to take Goldscheider's word for it ; but even he does not think the case proven. Lehmann's¹⁴ argument is, in my opinion, a perfectly satisfactory reply to Goldscheider's claims. Even if we accept, for the sake of argument, the correctness of the facts as stated by Goldscheider, it seems to me highly probable that it will be necessary to reinterpret them, perhaps in accordance with the hypothesis I have above suggested in reference to argument 4, in terms of which they are, in my opinion, readily statable as follows: that the nerves in question and their terminal organs are those of the cutting-pricking sensation, or some other form of sensibility, which always occurs in markedly painful phase under the conditions involved in the methods adopted by experimenters.

I have above presented all arguments of moment which to my knowledge have been brought forward to substantiate the view that pleasure and pain are to be classified with sensation. It seems to me that any unbiassed observer must grant that the utmost that can be claimed for these arguments is that they furnish ground

¹³ Vol. i. f pp. 395, 409.

¹⁴ P. 512. Cf. Lloyd Morgan, *Animal Life and Intelligence*, p. 378; also Theo. Lipps *Grundthatsachen d. Seelen lebens*, p. 202 ; also pp. 205, 206, ff., as in general upholding my contention.

¹⁵ *Op. cit.*, p. 37 ff.

for the provisional acceptance of the view in question as a working hypothesis *unless objections to the acceptance of the hypothesis appear in other directions*. But it seems to me that the arguments presented in the first part of this article have shown us that very formidable objections to the hypothesis *do* appear from other points of view. Furthermore, it can be shown, I think, that there is another hypothesis relative to pleasure and pain, which is not in disaccord with the observations that have been used as arguments supporting the sensational view, and which explains with seeming adequacy the facts I have raised in objection to that view."

If the reader grant that the argument given above is effective, and that pleasures and pains can in no proper sense be classed with sensations, then, it appears to me, neurologists are wasting valuable labor in the search for "pain paths" and for "pain localization" in the cortex of the brain: the paths in the spinal cord, and the supposed nerve terminals which have attracted the attention of investigators, thus appearing to be paths or terminals of nerve, mediating some form of sensibility, which, under the conditions of examination are always painful. For surely if pain and pleasure are qualities of all elements of consciousness, as appears from the evidence elsewhere collected, there is every chance that there are no special organs for either pain or pleasure, but that their physical basis will be found in a correspondence with some general properties brought out in all functioning of nervous tissue.

As a final word, let me make a comparison which may set my contention in a clear light.

A certain increased stimulation brings increased *intensity*: do our neurologists think they are called upon to look for some specific nerve paths to the brain, or some locus in the brain, for *intensity*? But pleasure and pain appear to me to be not dissimilar qualities of sensi-

¹⁸ Cf. my article "Pleasure, Pain and Sensation," *Phil. Rev.*, 1. 6.

bility : with them as with intensity a certain increased stimulation makes the sensation at one time pleasurable and again painful, and at times so painful that we can attend to nothing else than the painfulness ; but why, any more than in the case of intensity, should we feel bound to look for special nerve paths for pleasure and pain, or for any brain seat of their special activities ?

The Hypnotic Action of Somnal. — After describing carefully its chemical composition and the result obtained by other observers, Dr. Giovanni Memom concludes his interesting experiences in the *Bulletino de la Reale Accademia Medica di Roma*, Fas. viii, Anno xvii, as follows: In the insane, good results are obtained, especially in epileptic frenzy, paranoia, alcoholic psychomania, etc. It has shown its superiority over chloral sulfonal, and trional in many cases, not only by its hypnotic action, but because it is better tolerated and is not followed by any disagreeable after-effects. Contrary to the assertion of Umpfenbach in insane women, somnal has the same effect as in men, although special precautions must be taken. It is very beneficial in the insomnia of hysteria of tuberculosis, and in those patients suffering with cardiac affections, in whom it is not contra-indicated as some of the other hypnotics, because of the unfavorable sequellæ. In various cases where the other hypnotics (chloral, sulfonal, morphine,) have not given lasting and satisfactory results, somnal has succeeded without provoking any disturbance or secondary phenomena. According to Myers, somnal should have a good effect in convulsive cough, spasmodic laryngitis, asthma and chorea. The author has not been able to verify this assertion, not having had the opportunity of experimenting on such cases. The author has given the drug in three to five gramme doses, and has succeeded, in obtaining a sound sleep of from five to six hours duration. It is not followed by any deleterious effects, either on the part of the digestive, respiratory or circulatory systems.

W. C. K.

MIRROR-WRITING.¹

BY CHARLES K. MILLS, M D.,

Professor of Mental Diseases and of Medical Jurisprudence in the University of Pennsylvania, etc.

R—, thirteen years old, a strong, healthy infant, began to walk and talk at the age of ten months, and is reported to have had a sunstroke, followed by cerebral meningitis, when eighteen months old. Whatever the illness may have been it was attended with convulsions, and resulted in partial right hemiplegia.

The child's father was intemperate and dissolute.

The boy ranks high mentally, as compared with other children in the institution, and would be classed with the highest grade of imbeciles. He fairly understands all ordinary matters, as telling the time of day, the use of common appliances, the value of coins, notes, etc.; he can repeat the alphabet, can spell and read words of one syllable. He is a docile, sensitive, somewhat emotional child.

He was examined as to touch, pain, temperature, weight, resistance, pressure, etc., and no disorder of sensibility was found. Hearing, smell and taste are good.

The record of the examination of his eyes and sight as made by Dr. S. D. Risley is as follows:

O. D., V. equals $\frac{6}{xxiv}$ O. S., V. equals $\frac{6}{xxiv}$

Vision is the same with both eyes together.

He matches colors perfectly. No contraction of the form field is present. At first in reading the letters on the test card he commenced to read them backward, but at the third line he read them as usual, that is, from left to right. The ophthalmoscope shows large central excavations in both nerves, and throughout the eye-ground the commencing pigments are absorptive, probably the result of eye strain. He has hypermetropia 2.D, with some astigmatism in both eyes. There are no eye-ground changes pointing to intracranial lesion. The lowered sharpness of vision is in part due to his refraction error.

¹ Read before the Philadelphia Neurological Society, Oct. 23, 1893. This boy is a pupil of the New Jersey Training School for Feeble-Minded Children at Vineland.



This is a fair sample
 of gentle broad young
 manhood as called for
 by the world

He has right-sided partial paralysis with atrophy. Movements about the shoulder and above the elbow are comparatively good, but as the arm is descended the loss of control becomes more and more marked, and is extreme for all the highly specialized actions of the forearm, hand and fingers. Practically all that he can do below the elbow is slightly to increase the flexion of the already partially flexed fingers, and then to extend these again to their usual positions. Strenuous efforts to move the fingers cause slight athetoid manifestations. Voluntary movements in the right lower extremity are affected much in the same way as the upper. The face on the right side shows a slight drooping, and a smoothing of contours; and he is unable to perform any special willed movements of this side of the face. The right upper extremity is much smaller than the left, and presents no contractures or deformities, except that the thumb is somewhat depressed and drawn under the index and middle fingers. The right leg, like the upper extremity, although considerably smaller than the left, is symmetrical, the only deformity, being some adduction of the foot.

Some measurements were taken as follows:

	<i>Right.</i>	<i>Left.</i>	
Acromion process to external condyle of humerus. .	9.5	10	inches
Ext. condyle of humerus to lower end of radius. . .	7.5	8.25	"
Dorsum of wrist to tip of middle finger.	6.25	6.5	"
Ant. superior spinous process of ilium to patella . .	13.5	14.5	"
Patella to malleolus.	13.25	14	"
Length of foot.	8.37	9.12	"
Circumference of middle arm.	7	8	"
" " forearm	8.75	7.75	"
" " middle thigh.	14	12.25	"
" " middle leg.	10.25	11	"

The photograph (see plate) shows the arrest of development of the limbs and body on the right side.

When efforts were made to teach the boy to write with his left hand from a copy it was discovered that he always made his attempts at writing from right to left, inverting the words and letters. A study of this peculiarity was then made.

Herewith is given a sample of his writing from a copy (see plate). He copies slowly, but always begins without hesitation to write in mirror fashion.

Mirror-writing is so called because it can be easily read in a mirror, in which the reflection appears as in ordinary writing. Erlemeyer, in a monograph published

in 1879, called particular attention to this curious defect, and it has received attention from a few investigators, particularly those interested in the study of brain physiology in its relations to disorders of speech and of writing, and to those who have discussed the dual action of the brain.

According to Savage,¹ mirror-writing is met with in some forms of mental weakness and in conditions of mental disorder allied to the hysterical; occurring also in cases of moral perversion where it may be only temporary; and being observed more commonly among women than among men, and being most easily acquired in highly nervous people.

In writing or copying a word from right to left, one would ordinarily trace the last letter and then the next, and so on backward to the beginning of the word. In mirror-writing the image of the word is inverted, the first letter in it appearing on the right and upside down, so that the word will be in the ordinary position when reflected from the mirror, or when seen from behind through transparent or translucent paper.

Mirror-writing can, of course, be done as a trick, or for amusement, and with the right or left hand, but those who try it will usually at first find it difficult to make particular letters, and more especially to connect them together consecutively.

Dr. Wilbur sent to Dr. Ireland specimens of the writing of a man who could write the same words with both hands at once, the writing done with the left being mirror-writing; but as he could also do the same with both hands moving from left to right in ordinary text, the performance was probably seight-of-hand.

Ireland² gives the details of several interesting cases, some of them much like our patient. One was a paralytic, imbecile girl, between eleven and twelve years old when studied; another was a genetous imbecile girl of fourteen; another, a congenital imbecile of twelve;

¹ Savage: Tuke's Dictionary Psychological Medicine, Vol. i., p. 573.

² Ireland: Brain, Vol. iv., October, 1881.

another, a boy of moderate intelligence of thirteen; all of these defective children wrote with their left hands the specimens of mirror-writing. He also mentions two left-handed idiot boys who formed pot-hooks from right to left, so that they would have eventually taught themselves mirror-writing. Buchwald, cited by Ireland, has reported the case of a right hemiplegic and aphasic, forty-five years old, who soon learned to write in a skillful manner, but in mirror-writing, his name as well as the numerals from one to ten, except the figure eight which he had forgotten. Although the inverse direction of his writing was pointed out to him, he could not be induced to try writing from left to right; and although by persistence he learned to copy some things correctly but awkwardly, he would again fall into the mirror-writing.

The left-handed show a physiological tendency to mirror-writing. Of a class of sixty boys and girls, who tried to write their names with their left hands, two girls and three boys wrote in mirror-writing, and all of these were found to be left-handed. Out of another set of one hundred and thirty-four children, six were left-handed, and three of these were mirror-writers. Imbecile children who are often left-handed also frequently show a tendency to reversions in spelling and in pronouncing words.

One of Leonardo da Vinci's manuscripts is an example of right-handed to left-handed or mirror-writing, and it has been supposed that this singular style was adopted to preserve the work from superficial readers, but another reason is suggested. A priest who visited Leonardo during the last years of his life, has recorded the fact that he had paralysis of the right hand, and it may, therefore, be that as he was unable to use his right hand, he learned to write with his left and became a mirror-writer.

A telegraph operator has informed me that at times when an operator is occupied in sending a message with the right hand, and wishes without stopping to make a

memorandum with the left, often the letters are reversed a B, for instance, being written g. Two explanations of this are suggested—one that the operator can with readiness write in the centrifugal direction from the trunk, and will, therefore, incline to reverse the letters; another, that the left hemisphere being intensely occupied with both the mental and manual effort required in sending a message, the right takes separate charge of the left hand in making the memorandum.

Ireland comments as follows on the probable mechanism of mirror-writing:

"It may be asked, is the image or impression, or change in the brain tissue from which the image is formed in the mind of the mirror-writer, reversed like the negative of a photograph; or if a double vision be formed in the visual centre, one in the right hemisphere of the brain and the other in the left, do the images lie to each other in opposite directions, *e. g.*, C on the right side and ∩ on the left side? We can thus conceive that the image on the left side of the brain being effaced through disease, the inverse image would remain in the right hemisphere, which would render the patient apt to trace letters from right to left, the execution of which would be rendered all the more natural from the greater facility of the left hand to work in a centrifugal direction. Moreover, when one used the left hand to write, there would probably be a tendency to copy the inverse impression or image on the right side of the brain."

Special convolutions in the right hemisphere have in a quiescent and undeveloped state the same functions which are active in the corresponding convolutions of the left hemisphere, as many observations on aphasic patients have demonstrated. Lesion of the left third frontal, or of the first and second temporal convolutions are restored or reacquired through the arousing and developing of the latent activities of the right hemisphere. The right side of the brain is not functionless, but its functions are in part, and sometimes largely, in abeyance. When the individual has the perfect use of the left half of his brain

—is right-handed, has the usual expertness with his right hand, has speech and vision in accordance with his inheritance and his training—impressions which come to him through his eyes are received and transmuted both by the lower and higher visual centres, so as to present to his consciousness a normal or a usual image, which, as a rule, has been registered only by the visual centre of the left hemisphere. In this centre the images are usually recognized as right side up; the image formed on the right side, if one exists, is probably usually suppressed. When now the left side of the brain is destroyed, or when, as in the case of our patient, its development has been arrested, the individual is guided in writing by images formed in the right side of the brain.

Dr. S. D. Risley, of the consulting staff, whose examination of the boy is given in the report of the case, has kindly furnished the following additional notes:

“A little girl eight and a half years old, a bright, active, precocious child, in perfect health, had the right arm temporarily disabled from a fracture within the capsule. She was naturally ambidextrous. While unable to use the right hand and arm she went on with her rudimentary work at school, using the left hand for writing, making figures with as much apparent ease as the right had before been used, but the characters were formed from right to left and were waved as in typical mirror-writing.

“The second case was reported to me by Dr. John T. Carpenter, Jr. A gentleman, an expert stenographer, had his right hand shattered by a gun-shot wound and was compelled to resort to the use of the left hand, but found himself tapering into mirror-writing. When on his guard, *i. e.*, by intellectual attention, he could write correctly, but was much chagrined by often being compelled to trace what he had written by aid of a mirror. He was himself unable to read the page without such aid.”

PROGRESSIVE MUSCULAR ATROPHY ASSOCIATED WITH LOCOMOTOR ATAXIA.¹

WITH TWO ILLUSTRATIONS.

By JOSEPH COLLINS, M.D.,

Visiting Physician to the Hospital for Nervous Diseases.

THE following case, which I have had under observation for the past six months at the Hospital of Nervous Diseases, presents a typical clinical picture of two distinct diseases, both of which have for long been considered diseases of the spinal cord. One of them, the progressive muscular atrophy, in an extremely advanced stage, the other sufficiently well marked to have all the cardinal symptoms; therefore, I have deemed the case of sufficient rarity and importance to present it for your observation.

The clinical history is as follows:

L. M., 50 years old; a native of New York, and by occupation a commission clerk. There is no history of neuropathic heritage. When twenty-five years old, he had the misfortune to contract syphilis. For many years, from early manhood till the time when his disease incapacitated him from earning the necessary money, he was addicted to strong drink. As a young man he was very strong, and he often essayed to test his strength in the prize ring. In 1862, he stopped the progress of two bullets and they are yet lodged in his body. With these exceptions he remained quite well until his thirty-sixth year. He then noticed after a period of considerable exposure and debauch, that he was losing the strength of the arms, and that his grip was becoming progressively weaker. With this there was associated general weakness of the extremities and considerable pain in the legs. For two years he grew worse steadily, and finally on losing control of the bladder he went to a hospital. In the hospital his upper extremities continued to get

¹ Read before the Section on Neurology of the N. Y. Academy of Medicine, Oct., 1893.

weaker so that they became quite powerless, and after about a month he suffered, in addition to the bladder, trouble from incontinence of feces. The hands and shoulders then began to get smaller and continued to do so for many years. After two years in the hospital, he had regained control of his sphincters, his legs became



FIG. I.

stronger and he left the hospital. It was at this time that he began to complain that he saw double and of severe lightning pains in the lower extremities. These pains were so severe that for weeks at a time he could not get sleep. Sexual power was rapidly lost, and periodically he would loose control of the sphincter vesicae. From this time he was unable to walk in the dark and

had difficulty in descending steps on account of fear that he would fall as he could not hold on by the hands.

The wasting of the upper extremities, which had been progressing during this time, began first on the right side, and has always been more marked on this side than on the left, although the left is extremely affected. As



FIG. II.

has been said, the atrophy first showed itself in the shoulders and hands and has gone on until the present condition was reached. The wasting involved apparently the flexors and extensors equally as no suspicion of the "claw hand" ever developed. The wasting at first was very rapid, but after three to four years it progressed very slowly.

Examination made April 5, 1893 (which, likewise, indicates his present condition), was as follows: On inspection, the patient when at his ease assumes the posture with the head bent forward so that the chin nearly touches the chest, (Fig. I.) When asked to hold the head erect the chin is tilted upward and the head is inclined a little backward. The former is his habitual posture. The upper extremities hang like flails from the shoulders. They are completely powerless. By swaying the body he is able to start them in a swinging motion. The hands look as if they had been flattened with a rolling pin; the eminences and depressions have entirely disappeared. The forearms and arms have lost almost completely their muscular tissue, some fat still remains. The head of the humerus on the right side has dropped from its socket so that a depression the width of a finger is left, (Fig. II.) On the right this is also apparent, but to a lesser degree. The muscles of the shoulders and back presenting the most extreme atrophy are, on the right side, the deltoid, supra and infraspinatus, serratus anticus (which presents a remarkable degree of wasting), trapezius, with the exception of its occipital bundles, teres major and minor. The latissimus, pectoralis major and sternocleido mastoid, are affected to a lesser degree. The rhomboids are quite well preserved, as is the levator anguli scapulæ. The same condition is present on the left side, but to a considerably lesser degree, distinctly so in the left serratus anticus which is quite well preserved when contrasted with the right.

There is no fibrillary tremor in any of the partially wasted muscles and no response to tapping.

There is scarcely any lordosis.

Sensation in upper extremities is well preserved. The size of the lower extremities is not far from normal, but there is a suspicion of atrophy in the left peroneal group.

There is marked Romberg symptom. Inability to stand on one foot or raise himself on tiptoes and inability to walk backward.

Signe de l'escalier.

Entire loss of myotatic irritability. Considerable ataxia in locomotion. No spastic condition. In the lower extremities, marked diminution of sensibility, especially for pain, and sensation is greatly delayed. He says "now" in response to a severe prick of a pin in from three to four seconds in different parts of the lower ex-

tremities and the maximum pain is not attained for several seconds.

There is no haphalgesia and no loss of temperature sense.

The pupils react moderately to accommodation, but not to light.

Complains of great heaviness of lower extremities, lancinating pains, paroxysmally, and of a continual girdle sensation. Cold weather or exposure aggravates his symptoms markedly and causes frequently distressing weakness of the sphincters. The atrophy of the muscles has apparently come to a standstill.

A Clinical Study of Paralysis Agitans with a Case of Recovery.—Mann (*The Physician and Surgeon*, Oct., 1893). The writer gives the most meagre clinical details of a case which he considered paralysis agitans. The patient had trembling of all the extremities and tongue, which was greatly increased by emotional disturbance. Muscular force and cutaneous sensibility were normal. The disorder came on gradually as the result of domestic unhappiness and grief, and terminated in a condition of subacute mania, with delusions of persecution and suspicion and hallucinations of sight and hearing. The treatment employed was drachm doses of sodium bromide and tincture of hyoscyannus and central galvanization. In less than three months the patient was discharged, *sans* paralysis agitans, *sans* mania, and in a condition of general excellence. The writer *naively* remarks, "I do not know that I should in another case get such a favorable result."

Without some details of the case that would assist in making a diagnosis of paralysis agitans, the report of this case can have neither scientific value nor carry conviction.

J. C.

Forensic Medicine.

By MATTHEW D. FIELD, M.D.,

New York.

Privileged Communications.

If the patient himself, "uncovers his maladies and infirmities in Court," he "thereby breaks the seal of secrecy" imposed upon his physician.

Judge Pryor (Daly J. and Bischoff J. concurring) says:

"The thing forbidden by the Code is the disclosure of professional information; and the policy of the enactment is to protect patients in the free revelation of their maladies to the physician. But, what if, in order to enforce a claim against a stranger, the patient himself promulgates the information, and uncovers his maladies and infirmities in Court; does he not thereby break the seal of secrecy and absolve the physician from the obligation of silence? Does he not, in the strictest and most emphatic sense, waive his privilege? Is it to be tolerated, that, to mulct another in damages, he may inflame a jury with a false or exaggerated story of his injuries and suffering, and yet the physician whom he has consulted is not to be allowed to prevent the meditated injustice by a truthful statement of the case? It is to be borne in mind, too, that here the physician was not called to reveal the ailments of the patient, but to prove that she suffered from no such injuries as she represented."

(*Treanor vs. Manhattan Railway Company*).

In *Marx vs. Manhattan Railway Company* it was held, that if a party testify to a confidential interview with his physician, his adversary may call the physician to contradict the story of the patient. The Court in the case placed its decision upon the ground that, "the evidence offered related to the same interview as to which the plaintiff had testified and to the occurrence of which he had pretended to give an account," and "having himself gone into the privileged domain to get evidence upon his own behalf, he cannot prevent the defendant

Periscope.

UNDER THE DIRECTION OF JOSEPH COLLINS, M.D.

EXCERPTS WILL BE FURNISHED AS FOLLOWS:

From the Swedish, Danish, Norwegian and Finnish:
F. H. PRITCHARD, Norwalk, Ohio.

From the German:
WILLIAM M. LESZYNSKY, M.D.,
New York.
BELLE MACDONALD, M.D., N. Y.

From the French and German:
L. FISKE BRYSON, M.D., N. Y.

From the Italian and Spanish:
WILLIAM C. KRAUSS, M.D., Buffalo, N. Y.

From the Italian and French:
E. P. HURD, M.D., Newburyport, Mass.

From the English and American:
A. FREEMAN, M.D., New York.

From the French and German:
P. MEYROWITZ, New York.

The Editor will not accept as ORIGINAL ARTICLES and CLINICAL CASES those that have appeared elsewhere.

Authors are requested to make none but typographical correction on the proof sent to them. The manuscript must represent the final form in which the article is to be printed.

ANATOMICAL.

Brain Preservation, with a Resume of Some Old and New Methods.—In the Wilder Quarter Century book, Mr. Pierre A. Fish, of Ithaca, N. Y., instructor in Cornell University, reviews the subject of brain preservation from the time of the ancient Egyptians down to the present, including some original observations by the author. To a Hollander, Frederic Ruysch, belongs the honor of first having been able to preserve the brain as a whole. His formula was not divulged however, and the secret of his success died with him. Reil's method was also applicable for the preservation of the brain in toto. The reagents commonly employed for the preservation and hardening of nerve tissues for microscopical purposes are enumerated with comments on their adaptability and success. In preserving the brain as a whole some fluid is necessary of about the same specific gravity as the brain itself, replacing gradually the natural fluids of the tissue with a simple fluid, or with a solution of

some salt of equal density, and not markedly changing the natural color or size of the specimen.

After considerable study and experimenting a fluid was devised, which, though not ideal in its effects, seems to answer the requirements of economy, fixation of the structural elements, differentiation of tissue, a minimum amount of distortion, firmness of texture, and rapidity of action.

The formula is as follows:

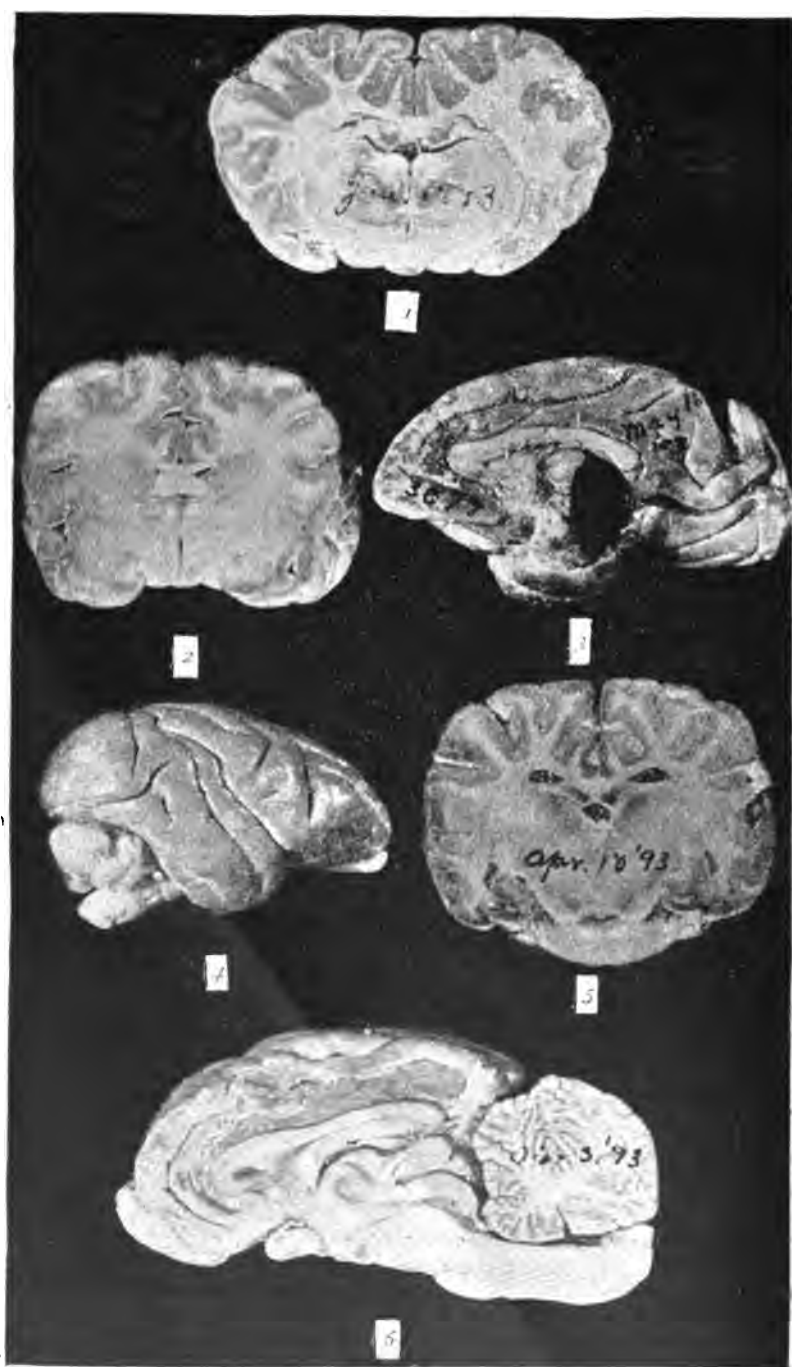
Water	400 c. c.
95% Alcohol	400 c. c.
Glycerin	250 c. c.
Zinc chlorid	20 grams.
Sodium chlorid	20 grams.

The specific gravity of the mixture should be about 1.04, a little greater than that of the brain itself (1.038). The slightly greater density of the fluid is believed to be more advantageous than otherwise, since it buoys the brain until the tissue has begun to harden and can partially support its own weight. The pressure is nearly enough equal on all sides to prevent any noticeable change of form. It is recommended that the cavities of the brain be filled with the mixture (coëlinjected) and if practicable the blood-vessels also injected. After an immersion of about three days the specimen should be transferred to equal parts of the foregoing mixture and seventy per cent. alcohol for a week or more, where on account of the lesser specific gravity it should rest upon a bed of absorbent cotton; it is finally stored in ninety per cent. alcohol.

After dehydration in repeated changes of ninety-five per cent. alcohol, immerse the brain in a mixture of:

Turpentine.	3 parts,
Castor oil	1 part,

until it becomes tolerably translucent (one or two weeks) changing the solution if it becomes cloudy, then transfer to pure castor oil for a week or two. Allow it to drain on a layer of cotton covered with absorbent paper until the surface dries and then paint it over a few times with an alcoholic solution of bleached shellac. The specimen soon becomes firm and requires no special attention when once it has become dry. This process differentiates alba and cinerea well. (See Plate). The brain sections or dissections should be made before immersing in the turpentine-oil mixture. It will be found that the alba



DRY PREPARATIONS OF THE BRAIN.

becomes translucent first, the preparation at this particular stage may then be put into the pure castor oil until thoroughly penetrated and subsequently drained and shellaced. The castor oil may be used repeatedly and costs only one-half as much as glycerin. Some shrinkage occurs, the dry specimen losing about one-fourth of its volume after it has left the liquid.

DESCRIPTION OF PLATE.

All of the figures are at about the natural size of the dry specimens and were prepared according to the castor oil method.

The transections show the differentiation of the alba and cinerea.

Fig. 1 and 6 are from the sheep, *Ovis aries*. Fig. 2 and 5 are from the dog, *Canis familiaris*. Fig. 3 is the mesal view of the right hemiserebrum of *Macacus rhesus*. Fig. 4 is the lateral aspect of the right hemiserebrum of *Macacus cynomolgus*.

PATHOLOGICAL.

A Case with Aphasic Symptoms: Hemianopsia, Amnesic Color-blindness and Phrenoplegia.—(Bleuler, Archiv. f. Psychiatrie u. Nervenkrank, Vol. xxv., p. 32, 1893).

A synopsis of this case may be given as follows:

Clinical.—Right side hemiplegia. Loss of sense of position of right arm. Phrenoplegia of the same. Lessening of the temperature sense of the right side. Right side hemianopsia. Amnesic color-blindness. Alexia. Amnesic aphasia.

Pathological.—Softening of the left island, the greater portion of both central convolutions and the underlying medullary substance and adjacent portions.

The patient, a laborer, 66 years old, a vagrant, showed, on admission to the institution, uncertain movements of flexion and extension of the right hand and inability to use the finger joints, the result of an improperly treated fracture some years before. He denied syphilis, had been alcoholic and shortly after admission he had an epileptiform attack. Psychically, he was slightly demented. Physically, strength of extremities good; no paresis, tremor of fingers, athetoid movements of fingers of right hand, face movements equal on both sides, pupils normal, no hemianopsia.

Three months later, a stroke of apoplexy, with entire right side hemiplegia, disturbance of speech hemianopsia, irregular pupils, first one pupil was larger, then the other. Consciousness lost and partly regained alternately. Later on, psychical functions largely regained. A month later, patient's mind is fairly clear, understands well, answers incorrectly because of inability to find the right words; complete alexia; right side hemiplegia. Cutaneous sensibility of both arms good, considerably blunted of right leg. Disturbance of speech considerably ameliorated.

Five months after the stroke, evidences of dementia well marked. Sense of touch and pain quite normal, except on dorsal surface of both feet. Loss of temperature sense on entire right side. Muscular sense and position sense lost on right side.

A few months later there was disturbance of the pupillary reaction. Inability to distinguish colors. Aphasia not so marked. He could not speak quite distinctly. Right knee reflex enormously exaggerated. Sixteen months after the stroke death followed, as the result of dry gangrene of the thigh.

Post mortem, fifteen hours after death, showed weight of brain 1220 grm. In the middle of the left convexity, a flabby, yellowish, brown area of softening. This involved a destruction of the central convolutions. Softening of a portion of the Island of Reil about one cm. long, and a like amount of the operculum and temporal lobes. The supra marginal convolution and both of the adjacent parietal convolutions were also considerably involved. The tractus opticus on the border of the softened area is brownish, not distinctly diminished in size. The entire orbital surface of the frontal lobes markedly atrophied on left side. Blood vessels at the base atheromatous. arteries of the fossa of Sylvius thrombotic, but the lumen of the vessels is not entirely obliterated.

The brain was imbedded in gelatin, according to Burckhart's method, and then cut with the Gudden microtome in ten frontal sections. These sections showed atrophy of the cortex. The central ganglia, internal and external capsule, claustrum and island could not be made out. The superior temporal convolution showed atrophy in a much higher degree than did the other portions of the brain. In the superior vermis of the cerebellum and the adjacent portion of the cere-

bellar hemisphere was an area of softening about two ctm. long and one ctm. wide.

Microscopically, there was found a high grade of atheroma of the arteries of the fossa of the Sylvius and the smaller arteries of the brain substance. The area of softening was a typical picture of softening of ancient date. In Broca's convolution, there were a large number of small areas of softening. The left superior temporal convolution showed a marked diminution of nerve elements. Corpus callosum showed diffuse atrophy. Left internal capsule degenerated *in toto*. The left tractus opticus showed partial and diffuse degeneration. The corpus geniculatum externum showed only a few normal ganglion cells. Degeneration of the right lateral pyramidal tract was complete.

The author remarks that the extensive area of degeneration and softening makes the case for localization purposes difficult. The deficiency of kinæsthetic sensation which the patient had in the right arm and which was manifest by loss of muscle innervation the writer calls phrenoplegia, after Nothuaegel, who located the cortical defect on which this is dependent in the temporal lobes.

The hemianopsia was remarkable, in so much as the patient was not conscious of it in spite of the fact that the cortex of left occipital lobe was preserved. Explanation of the amnesic color-blindness that the patient had was not possible, as both cortical visual areas were intact and the commissure between them and in the vicinity of the radiation of the posterior balken fibres in the left hemisphere was unbroken. The connection between the centres of ideas or conceptions, and cortical visual areas was therefore not disturbed.

Although the patient had complete alexia, he knew when he saw his name written that it was meant to represent him without being at all able to read the letters. In spite of the fact that there was destruction of the Island Reil, the patient was able to recite, to repeat and to say unknown words in strange languages and to sing melodies. The frequency of amnesic aphasia in comparison with ataxia aphasia is dependent upon the same factors that make motor-paralysis more frequent than sensory. Anatomico-physiologically, it is known that each centripetal function is one that advances from a certain definite locality to a general compiling or collecting organ. Every centrifugal function indicates a

conduction forth of an excitation from a general centre to a special location or place.

The direction in the first instance, is in the central organism manifold and comparatively diffused; the latter a simple, and distinctly exact, and for this reason more sensitive towards lesions, or expressed psychologically, the path of these associations from special to general actions is the more frequently taken and more easily definable; the path from the general to special tendencies the more rare and more difficult to diagnose, which by disturbances becomes much more hard to follow and to find.

The details of the case are in accord with the well known facts that the automatic functions of the brain are lost before the conscious.

As an illustration of how in certain cases the automatic functions may be preponderatingly disturbed, the writer cites the following case from Deleuze, who wrote on animal magnetism: A woman had a right sided hemiplegia. Intelligence was entirely preserved, but the disturbance of speech manifested itself in complete akataphasia and agrammatism.

J. C.

Bacteriological Examination of the Spinal Cord and Nerves in Syringomyelia.—Prof. Pitres and Dr. Sabrazes (*Arch. Clin. de Bordeaux*, May, 1893; *The Medical Week*, Paris, September 8, 1893), controvert the theory that syringomyelia is a form of leprosy, by a bacteriological examination, in none of which was Hansen's bacillus (the bacillus of leprosy) found. In the first case, a piece of nerve excised from an area of diminished sensibility, under the microscope showed the ordinary appearance of neuritis, but no bacilli. In the second case, an examination of the cord, showing typical appearances of syringomyelia, failed to show bacilli. The cord in the third case, likewise typical, no trace of bacilli could be detected. The authors conclude, from the results of these examinations, that an analogy may, and does exist, in some cases, between the symptoms of these affections, other than that they are two distinct morbid entities.

F. P. N.

Problems in the Pathology and Treatment of Inebriety, or Rational Cure of the Drink Habit.—Dr. J. G. Reed, Cincinnati (*Western Medical Reporter*, January, 1893).

Alcoholic craving comes from shock, produced by a morbid chemical process of nutrition, tending to destroy

co-ordination of the energies, and producing, through ever so slight an intelligence of the effect of stimulant drink, an impulse that determines to drink. Alcohol responds to this impulse by supplying energy. Food only stops craving during digestion. Women are less devoted to alcoholism than men, by reason of their nature to rely on others. In seeking greater liberty, she breaks her feminine inheritance, and is exposed to changes producing alcoholism. Chemical evidences sustain these views. To treat successfully requires elements destined to harmonize and vitalize discordant conditions. Sthenic and asthenic cases require opposite treatments. We must allay nervousness and sustain strength, while the alcohol in the system is eliminated. Then food, light, air, water and sleep will be necessary. Treat cases scientifically and on their merits. Alcoholic cases rapidly disappear by uniform treatment. F. P. N.

The Morbid Anatomy of Acromegaly.—Squance (*British Medical Journal*, No. 1714, p. 993). The writer reports a case of acromegaly in a woman, 35 years old, who had complained of intense neuralgic pains through the temples and the top of the head, and also shooting pains at the back of the neck, accompanied by general languor and inability to apply herself to any prolonged occupation. Her memory was defective and her articulation slow and deliberate. There was no impairment of vision. The hands, the feet, the malar bones, and the maxillæ were enlarged. Diabetes developed, and, later on, pulmonary tuberculosis, to which the woman ultimately succumbed. Only a partial post-mortem examination was permitted. The head was increased in size, the face elongated; the malar bones were enlarged and prominent; the superior and inferior maxillæ were considerably hypertrophied, though the lower jaw did not project in advance of the upper. The eyelids were thickened and the supra-orbital ridges enlarged. The nostrils were considerably increased in size and very broad, and the ears were greatly hypertrophied. The hair was scanty and coarse, and the skin harsh and rough in appearance. The hands and feet were symmetrically enlarged; the nails were broad and the big toes large in proportion. The shafts of the long bones were not only considerably thickened, but they were also roughened, approximating the male type. The thorax was considerably enlarged, especially in the upper part; the ribs were uniformly hypertrophied, as were also the clavicles. In the lower

cervical and in the upper dorsal region there was a certain amount of prominence of the spine. On opening the skull, the frontal, parietal, and occipital bones were found to be thickened, the hypertrophy principally involving the diploë. The brain weighed forty-six ounces and its membranes were normal. The pituitary body was considerably enlarged, and the canal between it and the third ventricle was patent. The optic nerves immediately in front of the commissure were much flattened, especially the right, which was exceedingly soft and tore easily. The thyroid gland was enlarged and weighed nearly two ounces. The thymus gland was persistent, the left lobe hypertrophied and passing behind and to the left of the manubrium sterni. The gland measured nearly two inches in length and weighed one ounce. Its surface was lobulated, its consistence pulpy, almost diffuent, and its color a brightish pink.

J. C.

CLINICAL.

Paralysis Agitans and Hysteria.—Chabbert (Archiv. de Neurologie, June, 1893)

The case reported by Chabbert establishes:

1. Paralysis agitans occurs in individuals who have previously presented convulsive manifestations of an hysterical nature.

2. It is possible for paralysis agitans to co-exist with perfectly characteristic stigmata of hysteria.

The case cited is as follows: Male, 66 years old; family history free from nervous or diathetic conditions. One brother had attacks resembling "haut mal," following fright.

The patient in his infancy and youth was free from convulsions and eruptive diseases. When twenty years old he had a well marked attack of *grand hystérie*, which followed a period of exceptional *bien faisance* and self-sufficiency. Two years later he suffered from an attack of typhoid fever which was followed by an extremely tedious convalescence. From 1859 to 1886 he had perfect health. At this latter date he was greatly harassed by financial obligations which he was unable to meet and which later necessitated the emigration of his family.

After this his disposition changed. He became sad and taciturn, suffered from indigestion and insomnia and instability of the emotions. Two years later he "caught cold," which settled in the head and left upper extremity.

This was followed by a considerable pain and stiffness which was thought to be rheumatic. Some months afterward, following severe emotional disturbance the left hand and later the entire extremity began to shake. When the case was reported the most important symptoms, without entering into details, were as follows: The objective symptoms were, muscular rigidity, tremor, mask or expressionless face, characteristic attitude of Parkinson's disease. Subjectively, there were, sensations of twitching, desire to continually change position, great and easily induced fatigue. The symptoms that are frequently found in paralysis agitans and which were absent in this case, were the sensation of heat, which in this patient was replaced by a sensation of cold, and propulsion and retropulsion.

In addition to this group of symptoms, he presents exaggeration of the knee and masseteric reflex and epileptoid trepidation. The stigmata of hysteria, which are well defined, are, concentric limitation of the visual field, dyschromatopsia, loss of sense of smell and of taste. The author remarks that the change in the reflexes are suggestive respectively of change in the lateral pyramidal columns and the ganglionic elements of the cerebro-spinal axis, but the supposition of such a lesion can be quickly excluded in this case, and that the exaggeration of the reflexes are dependent on the hyper-excitability of the spinal centres which is so frequently seen in hysteria. He further remarks that the co-existence of these two diseases does not interfere with the conception that we have of them, from a pathological standpoint. As the author suggests that the two diseases, paralysis agitans and hysteria have a very close relationship, it is probable that he does not accept very seriously the view of degenerative or least nutritional changes that have been described by many recent writers on paralysis agitans as existing in the gray matter of the brain and spinal cord.

J. C.

Two Cases of Epilepsy Dependent Upon Alterations in the Nose.—Dr. F. Kjellman, of Stockholm, describes two cases of epilepsy in children due to alterations in the nasal cavity. The first case, a school boy of 12 years, had for four years suffered from epileptiform attacks, which usually appeared in the morning. He would be found with his head buried in the pillow, his face distorted, his body completely rigid and unable to speak and unconscious. This would persist for

fifteen to twenty minutes and be followed by headache and languor. The attacks increased in frequency and were associated with involuntary urination, appearing at other times, as on going to bed or even during the day. Later, the seizure was accompanied with tonic spasms in the left side of the face, in the tongue and neck muscles. No tendency to nervous diseases in the family. The mucous membrane of the lower turbinated bones was found soft and hypertrophic. These were cauterized and he was free from the seizures for eight months when another was observed. Renewed cauterization and freedom from attacks. The writer has found about fifteen cases, in the literature where epileptic attacks were found, to cease after treatment of morbid changes in the nasal cavities. The conditions mentioned are polypi, foreign bodies and hypertrophies of the mucous membrane of the turbinated bones, especially that of the lower. This first case he explains as of reflex origin. The second case was a boy of 6 years, who, for the last two and a half years, had been observed to have spasmodic seizures during the morning while still in bed. When but slight, as it sometimes was, the spasm appeared only in the left hand and arm, with consciousness. In the more severe ones, respiration was groaning, his face pale, and his mouth open. On his mother taking him into her arms he would cry out: "I am suffocating." The spasms involved the entire body, he was entirely unconscious, the skin was cold and clammy, and on awakening he could not move his left arm, in which he complained of formication and a numb feeling. Usually after this he would fall into a deep sleep and on waking could scarcely stand upon his feet. His attacks were worse whenever he had a cold. A moderately well developed, soft and diffuse swelling of the mucous membrane of the right lower turbinated bone was discovered. This was cauterized, and as he was in the habit of sticking his fingers into his nose during sleep, his arms were encased in stockings. Three seizures, two of slight violence, followed this, and since then he has been free from them. In this case he regards the disease as due to impeded respiration from the child's habit of sleeping with his fingers in his nose, and not from the hypertrophy. From these he concludes that not all cases of nasal origin are dependent upon irritation of the nasal filaments of the trigeminus, and that in certain cases of so-called noc-

turnal epilepsy the seizure may be preceded by an asthmatic attack and be due to impeded respiration.—*Hygiea*, No. 2, 1893. F. H. P.

On Simulation of Concentric Contraction of the Visual Field in the Traumatic Neuroses.—In an article in the *Deutsch. Med. Wochenschrift*, 1892, No. 24, Schmidt-Rimpler does not absolutely ignore the contraction of the visual field as a symptom of the traumatic neuroses, but finds adequate justification for such a view in one case under his observation. When a marked contraction of the field is claimed in the absence of objective findings, he considers a certain amount of suspicion as to simulation as warranted. Oppenheim's view that such simulation in typical form cannot be carried out, or else only by an exceptionally clever and regularly trained impostor, he declares to be incorrect. In some way the customary perimetric examination gives suggestions for eventual simulation, inasmuch as the patient at first really believes, and then tries to make the examiner believe, that he first sees the object brought from the periphery only when he distinctly perceives it. The acuteness of vision makes it possible for the simulator to always keep within the same limits of excentric vision.

As a test of credibility, the writer recommends the campimetric method of examination, published by him in 1885. He uses the so-called scotoma-board by means of which he measures the field, first at one-half m., then at double and triple distance. The field must increase correspondingly with the distance of the board. The simulator generally refers the peripheral appearance of the object at the same distance from the centre. Another test depends upon the fact, that by means of a prism, the picture of the peripheral object (which is supposed to be seen for the first time), is thrown upon a still further peripheral portion of the retina, which is not sensitive. If both eyes are left open, the simulator asserts that he sees double images, one of which shows a colored border owing to the action of the prism.

The negative result of this attempt at simulation does not prove absolutely the reliability of the patient, as he may be so far instructed that he knows all the conditions that are to be considered in this case. The positive result bespeaks, undoubtedly, unskilful intentional deception, and cannot be explained by any special psychical process, such as amaurosis and contracted field in hysteria. There is no reason why the results of the cam-

pimetric and prism tests should not at least be in approximate agreement with the optical requirements. He concludes, therefore, that a concentric contraction of the visual field which cannot stand the tests above described, should not claim the importance of an objective symptom of the traumatic neuroses (Neurolog. Centrbl., No. 17, 1893).

W. M. L.

Diabetic Neuritis.—De Renzi (Rivista clinica e terapeutica, Feb., 1893). Neuritis has been noticed by De Renzi in a patient 38 years old, who had suffered for eight years from diabetes. The manifestations of diffuse inflammation of the nerves was mostly in the lower extremities, and later in the left upper extremity. Ordinary reaction of degeneration was present.

J. C.

On a Symptom that Frequently Accompanies Nocturnal Enuresis in Children.—Frend calls attention to the fact that in about one-half of the number of children suffering from nocturnal enuresis, there is a hypertonicity of the lower extremities without other functional disturbance. The child is completely undressed and placed in a sitting position on a table. Both feet are grasped and an attempt made to separate the legs as far apart as possible. One encounters a resistance, at first quite pronounced, but gradually diminishing. The resistance is in the adductors. If the extremities are suddenly released, they spring together like an elastic band, the heels striking each other with a loud noise. There is also some rigidity in the quadriceps. The same resistance is demonstrable when the legs are rapidly flexed upon the thigh while the child is in a recumbent position. The tendon reflexes are rather pronounced and the musculature is often exceptionally well-developed. After presenting various explanations for these phenomena, he concludes that the significance of these symptoms is still to be explained, but they seem, however, to favor the assumption of the existence of a special form of nocturnal enuresis.—(Neurolog. Centrbl., 1893, No. 21).

W. M. L.

On the Changes in the Visual Field in the Traumatic Neuroses.—Wilbrand has made an extensive study in over sixty cases of nervous disease at the Eye-clinic of the Hamburg General Hospital (*Deutsch. Med. Woch.*, 1892, No. 17), from which he concludes that the same symptom-complex of nervous asthenopsia is found in all forms of neuroses. This is composed of concentric contraction of the visual field, diminution of cen-

tral visual acuity, feebleness of accommodation and various other optical troubles. As the concentric contraction of the field is so frequently found in all the general nervous conditions, which are classified as asthenoptic phenomena, he considers it remarkable that this symptom-complex is so infrequently noted in the neuroses made manifest by trauma. He looks upon the concentric contraction of the field as a very frequent objective symptom of the traumatic neuroses, and explains the negative results of other observers by certain defects in their method of examination. When there are no special complaints of asthenoptic symptoms, the measurement of the fields may be overlooked.

The field may be normal in one eye, but in the other that may then be neglected, a marked contraction may be present.

The writer lays as much stress upon slight degrees of restriction as upon the most pronounced. Finally, he deplors the absence of sufficient regard for the law, that in functional neurosis the size of the field is directly proportionate to the size of the object used in the examination.—(Neurolog. Centrbl., No. 17, 1893). W. M. L.

Coronet Players' Cramp.—Turner, (*Lancet*, April 23, 1893). Occupation neuroses will soon become as numerous as the occupations themselves. The most newly fledged is the cornet players' cramp. Dr. Turner records this case: A man who had played the cornet for twenty years, found that it was gradually becoming more difficult to sound staccato notes. Unlike other occupation neuroses, the impediment grows less after practising for a time, and is least manifest when he is playing in his own room. No cause could be ascribed for its manifestation, except fatigue, overwork and feeble health. J. C.

PSYCHOLOGICAL.

The Duty of the State to the Insane.—By Andrew MacFarlane, M.D., of Albany, N. Y.

The doctor begins his paper by noting the fact, that two very important acts have lately been passed by the Legislature of this State with regard to the insane.

The first is the change in the name of the Insane Asylums to that of State Hospitals, and the second is the act providing for the care of the chronic insane.

The change in the name is a natural result of modern ideas, according to which insanity is regarded, not

as a manifestation of the evil one, but as a disease of the brain.

The Utica Asylum, founded in 1843, marked the first decided step in the humanitarian care of the insane by the State.

It was intended for the reception of recent cases only, the chronic cases being kept in the county houses.

In 1865 public opinion became so shocked at the treatment which these unfortunates received, that the Willard Asylum was built, the various counties being required to send their chronic cases to it instead of caring for them at home.

Although the State continued to build new asylums, the number of the insane increased much more rapidly than the accommodation provided for them. Moreover, the different counties found it more economical to abuse, under the guise of care, many of their chronic insane, so that in 1889 their number had increased to 2,200.

The condition of these poor creatures was most pitiable, and when it was found out the matter was stirred up until the State Care Act was passed, by which all the insane remaining in the county houses were required to be removed to the State hospitals.

The difficulties and the disadvantages of the present system are then shown, on account of the great number of patients assigned to each physician, the bad effects of overcrowding, the difficulty of properly classifying so many patients, etc.

Another serious disadvantage of the present system is, that the acute insane when they first arrive at the hospital are often very much frightened and thereby injured by the delusions and ravings of the more chronic cases.

The doctor then passes on to the main point of the paper, which is the proposal of a plan for the improvement of the present asylum system. Its outline is substantially as follows:

In the ordinary hospital population as they are constituted at present, the proportion of the acute insane is generally less than 10 per cent. These are the few who really require careful medical treatment. All the rest forming the chronic or incurable class, need only custodial care with incidental medical attention. It is a well-known fact that the average asylum physician is so overburdened with all sorts of duties, that he is unable

to give to the acute cases the care and attention that they deserve.

The doctor suggests that certain members of the hospital staff be detailed to attend exclusively to the acute cases, and that these patients should be kept, not in the big barn like main buildings so suggestive of an asylum, but that commodious and homelike structures be built in the neighborhood of the principal one, where they could be cared for and treated.

In these buildings the acute cases should be kept, and every possible effort made by means of medical care, including baths, massage, electricity, chemical examination of the blood and urine, to affect a cure. The nurses to whose care these cases are confided should be specially selected for their fitness and capability in the management of the insane. It will be found moreover that these nurses having charge of curable cases, will learn to take great pride and interest in their work, and will therefore do it so much the better. The average life of the chronic insane patient is twelve years, and it is estimated to represent a money loss of \$5,000.

It is therefore of the greatest importance from an economic point of view, without regard to any of the other aspects of the question, that every possible effort should be made to cure acute cases of insanity and restore them to society as producers, rather than to allow them to run into chronic incurable cases.

Moreover, the average cost of such an arrangement as is here suggested would not be greater than at present, as the following table will show: The average cost per patient in a hospital of 1,000 inmates is \$3.50 per week. Assuming that out of this number there are eighty acute cases, which is a very liberal estimate, costing each \$10 per week, it would give us \$800. The 920 remaining cases would be humanely and kindly cared for at a cost of \$3 per week, making \$2,760, and a total of \$3,560 for the whole thousand.

After numerous quotations from various authorities on insanity in support of his views as to the importance of separate treatment for the acute and chronic insane, he sums up the article as follows: The duty of the State to the insane consists in:

1. The separate treatment of the curable and incurable insane.
2. True hospital treatment for the curable insane with all the medical skill, nursing and care, regardless of expense, which the character of the disease demands.

3. Simple humane custodial care, at a moderate expense for the incurable insane.

(*Popular Science Monthly* October, 1893.) W. F. R.

THERAPEUTICAL.

Treatment of Neurasthenia by Injections of Nerve Extract.—Dr. C. Paul (*Medical Week*, Paris, April 28, 1893.)

In fifty-three observations in which this method of treatment was used, cure or marked improvement resulted. Dr. Paul's observations tend to show that the different parts of the nervous system are not equally affected in all cases of neurasthenia.

Sexual or genital neurasthenia stands next in frequency to the general or ordinary variety, in which the central or spinal symptoms predominate. In girls the genital variety is manifested in the form of chlorosis, coming on towards puberty.

In full-grown women it interferes with the successful treatment of uterine affections, which persist until the disappearance of the neurasthenia.

At birth neurasthenia often assumes a cardiac form in both sexes.

In males the genital neurasthenia may be manifested either by absence of sexual desire and impotence, or by spermatorrhœa. Neurasthenia seldom affects the stomach. Senile neurasthenia exists. The neurasthenia with hysteria, hypochondriasis or melancholia, is a complication of these affections, and only in exceptional cases influenced by injections. Neurasthenia may be brought on from overwork, but not by excessive walking. Neurasthenia follows excessive brain work and venereal excesses. Sleeplessness is the cardinal symptom. Injections of nerve extract produce sleep; sleep repairs wasted energies. Sleep is produced but for a few hours at first, but gradually the habit is restored and strength returns. In the failures—seven out of fifty-three cases—four were cases of hypochondriasis.

F. P. N.

Preparation of Extract for Treatment of Myxædema by Thyroid Juice.—Dr. J. A. Scott. Trans. Royal Academy of Medicine in Ireland, Dublin, 1893. (*The Medical Week*, Paris, May 5, 1893.)

The main point to be attended to is the absolute sterilization of everything. He touched neither the blades of his instruments nor the thyroid bodies with his hands.

On removal from the sheep, they were minced upon a board which was soaked in corrosive sublimate and then washed in phenol. They were then transferred to a sterilized glass capsule and brought from the abattoir and put into sterilized test-tubes and covered with equal parts of glycerine and a half per cent. solution of phenol. This extracted some of the organic principles in twenty-four hours, but not by any means all that might be obtained. A sterilized piece of linen was then placed in the cylinder of a syringe, the contents of the test-tube poured in and the piston forced down. Whatever was squeezed out was collected in a bottle. It is equally important to sterilize the skin of the patient when injections are made.

F. P. N.

The Hypnotic Action of Somnal.—By Giovanni Memmo.—In the *Buletino Allea Reale Accademia Medica di Roma*, anno xviii; fas. viii., the author sums up his experiences thus: In the insane we have obtained good results, especially in epileptic mania, paranoia, alcoholic psychoses, mania, etc. It has many times shown its superiority over chloral, sulfonal and trional because of its hypnotic action and because it was better tolerated and left no after-effects.

Sulfonal in the Treatment of the Insane.—Dr. John H. Scally (Maryland Hospital for the Insane) reports as follows concerning the action of sulfonal:

"In treatment at this hospital, sulfonal has been used for its hypnotic effect in the stages of excitement during attacks of acute mania, mania following epilepsy, recurrent mania, chronic mania, and also in melancholia.

"It has not been our custom to give it regularly each day, but only at those times when, owing to the extreme restlessness and motor excitability of patients, sleep is denied them. In the management of acutely maniacal patients just admitted, when it is necessary to secure immediate rest, and, as is often the case, when the patients' very lives demand it, sulfonal has not failed in any case in which it has been used. Given in drachm doses, preferably in whiskey, not only has it secured from six to eight hours of sound sleep, but it has produced quite a decided amount of motor sedation, lasting from eight to twelve hours after waking. In each case sleep was obtained within one hour after administration and in none was any bad after-effects noticed.

"Three of our cases, two being of acute mania and one epileptic mania, furnish evidence of the value of

sulfonal as a prompt and reliable hypnotic, when given in sufficiently large doses. In the first two cases, both patients had been given morphine injections and other hypnotics by their family physicians, with no appreciable effect. In both cases sulfonal acted promptly. In the third case sulfonal was found to act much more promptly than bromidia, paraldehyde or morphia, all of which had been previously given.

The Treatment of Hysterical Aphonia.—Dr. Seifert (Berl. Klin. Wocheschr., No. 44, Oct. 30, 1893). Seifert employs a combination of laryngeal massage, Olliver's laryngeal compression, and voice-gymnastics.

He begins the treatment with external laryngeal massage in the form of strokes. The patient assists by inspiring deeply when the larynx is stroked. As the respiratory muscles, generally in these cases, fail to act properly, deep inspiration is an important part of the treatment, and must be taught the patient. The stage where this can be properly done by the patient having been reached, the second part of the treatment begins; namely, compression of the larynx, particularly of the upper and post parts of the thyroid cartilage, whilst the patient makes an attempt at phonation. Lateral compression of the larynx is alternated with vibration of the larynx, but here, also, deep inspiration is considered of importance.

When the patient is capable of producing the vowels with slight pressure on the larynx, the third part of the treatment is begun; namely, methodical vocal exercise. The patient is allowed to count from one to twenty, slowly and distinctly, whilst the fingers are placed upon the larynx, which is compressed from time to time. Inability to pronounce a number distinctly requires repetition with lateral compression until the word is spoken clearly. Each phonation is to be preceded by a deep respiration.

Some patients can be made to speak in the first place. This will require longer treatment. The causes, if possible, are to be obviated. Co-existing, nasal, pharyngeal and oral troubles are to be attended to. J. C.

Glycozone.—(*Times-Register* April 22, 1894, Cyrus Edson). The writer considers it to be the best known agent for the treatment of gastric ulcer. One of the best known remedies for alcoholism and other irritative conditions of stomach. The dose is two teaspoonfuls in a wine glass of water after meals.

Society Reports.

NEW YORK NEUROLOGICAL SOCIETY.

*Stated Meeting, held at the New York Academy of Medicine,
Tuesday evening, January 2d, 1894.*

Dr. M. ALLEN STARR, President, in the chair.

Dr. J. LEONARD CORNING narrated the history of the following case: The patient was a young man, aged 18 years, who received a severe kick directly over the right ear while engaged in a game of foot-ball. He was first seen by Dr. David Webster, who upon careful examination found that there was a total deafness on the right side; aerial and bone conduction were suspended. There was no trouble of the middle ear, and the drum was in perfect condition. There was slight bleeding of the external ear. There was no evidence of fracture. The case was then referred to Dr. Corning, who applied to the ear a rapidly interrupting Faradic current, which was allowed to pass through the ear for about ten minutes, when the hearing was so far restored that the patient could hear the watch at a distance of six inches. Before making the application, the external meatus was plugged with absorbent cotton moistened in salt solution. A severe tinnitus which existed with the deafness was also relieved. Dr. Corning said he had no idea what the lesion was, or why improvement followed the use of the current; it was employed simply as an empirical measure. The young man's hearing is now entirely restored. There was no suspicion of hysteria. The visual field was not tested.

Dr. DAVID WEBSTER said he supposed the deafness was due to concussion either of the auditory nerve or of the labyrinth, of which he has seen cases reported. Temporary blindness has been produced by a sudden blow on the brow, without ophthalmoscopic or other lesion. Most of those cases, however, are due to fracture of the base of the skull, involving the optic foramen and producing nerve atrophy. He has never seen another case similar to the one reported by Dr. Corning.

Dr. STARR suggested that the case might have been one of traumatic hysteria or concussion of the auditory nerve. In consultation with Dr. Jacoby, he recently saw a case of total deafness in both ears of central origin in which a temporary improvement in the hearing was produced by the use of a strong galvanic current; about six milliamperes, which is a strong current for the acoustic nerve.

Dr. J. ARTHUR BOOTH said that in a number of cases of tinnitus he has employed the galvanic current with marked benefit. He never saw a case similar to the one reported by Dr. Corning.

REPORT OF A CASE OF ACROMEGALY.

By Dr. RALPH L. PARSONS. The patient was a man aged 36 years. Family history negative. Never had venereal disease nor used alcoholic stimulants. He was in good health until eighteen years ago, when he had an attack of malarial fever. From this he recovered and has had no recurrence since. Ten years ago he was told that he stooped and carried his head to one side. Eight years ago he began to suffer from a pain in the back of his head. This came on mostly at night, and not oftener than once a week. Subsequently, the headaches occurred more by day than at night. Latterly, they have increased in frequency and duration, and have often been excruciating in character. The pain was usually most severe at the occiput, but would also involve the left parietal and frontal regions; the right side of the head was unaffected. About six years ago his attention was first called to the large size of his hands. He then for the first time perceived that they were of extraordinary size. He does not know for how long a time this increase in size has been taking place. He cannot say whether they have increased in size during the past six years.

A careful examination of the patient was made in October last, with the following result: Weight, two hundred and twenty-seven pounds. No pronounced symptoms of organic disease. Hair rather coarse, but natural in condition. Left ear slightly thickened. Forehead retreating; superciliary ridges quite prominent; no exophthalmos; malar bones rather prominent; cheeks appear rather sunken; nose broad and full at the nostrils; lips normal; tongue decidedly enlarged; obstructing free articulation; alveolar processes normal; teeth

not separated; chin elongated: head inclined strongly and habitually to the left side and forwards: hands large and spade-like, the right hand being decidedly the larger. The soft tissues of the hands and fingers are firm and resilient, as though infiltrated by an elastic substance; they do not pit on pressure. Wrists rather large; arms normal; thorax and pelvis normal. The feet are large, but perhaps not more so than in the case of many men of his weight. The patient has perspired very freely for the past ten years; of late the perspiration has been decidedly offensive. Besides the headaches already referred to, the patient also complained of pain in the left ear and eye, the latter coming on after reading or using the eye in a strong light. He does not think his eye-sight has become impaired. Appetite and thirst excessive. No pronounced mental symptoms.

On the 21st of October last, by advice of Dr. Starr, the patient began the use of thyroid extract, five drops three times daily. The dose was gradually increased until he received fifteen drops three times daily. With the exception of tonic baths, general hygienic measures and a regulation of the diet no other treatment was given. At the present time the patient reports that he is feeling decidedly better. He is more cheerful and his headaches have been relieved to a very great extent. They have not, however, entirely disappeared. There seems to be no change in the dimensions of the hands. His weight has increased rather than diminished. There has been a great improvement in the subjective symptoms, but there is still a reasonable doubt whether this improvement is due to the direct action of the medicine, or to the patient's mental status induced by the fact that something is being done for his relief.

Dr. CORNING was inclined to think that the improvement in the condition of the patient was due to the medication employed, rather than to the mere fact that something was being done for him. Such patients, he thought, are usually not of a very imaginative turn of mind.

Dr. WEBSTER inquired whether any change in the thyroid gland was noticed in the case? Also, whether there is any relationship between acromegaly and myxoedema?

Dr. STARR said he was somewhat responsible for the use of the thyroid extract in the case narrated by Dr. Parsons. There was nothing original in the suggestion, as this method of treatment has been pursued in Eng-

land in a number of cases of acromegaly. It is purely empirical. The supposed lesion of acromegaly is an increase in the size of the pituitary body. It is questionable whether it is in any way related to the thyroid gland. The eye symptoms in Dr. Parsons' case interested him, because in two other cases of acromegaly coming under his observation there was a concentric diminution of the visual field, and in one hemianopsia; the latter symptom is quite common, and is probably due to pressure on the chiasm by the enlarged pituitary body. In one case of acromegaly seen at St. Luke's Hospital last spring the patient died of pneumonia, and at the autopsy the pituitary body was found to be normal. There was nothing to account for the peculiar growth of the bones.

Dr. PARSONS, in reply to Dr. Webster, said it is generally supposed that there is a sort of relationship between acromegaly and myxoedema; whether this belief is well founded, or what that relationship is, he does not know. While his patient was not of an imaginative turn of mind, still he was hopeful, and that element would influence his mental state and perhaps even improve his physical condition.

SOME LESS CULTIVATED PHASES OF PSYCHOLOGY: CONSIDERATIONS ON THE GENESIS OF THE FEELINGS, OR THE RELATION OF DESIRE TO THE WILL FUNCTION. PRACTICAL DEDUCTIONS THEREFROM CONCERNING THE MANAGEMENT OF VARIOUS PSYCHOPATHIC CONDITIONS.

Dr. J. LEONARD CORNING read an interesting paper on this subject, in which he traced the relationship of the desires to the function of the will, and showed the importance of psychical influences in the correction of certain morbid mental conditions. In neurasthenia, simple melancholia, hysteria, and other functional nervous troubles the desires are best evoked and fostered through the special senses, notably through the sight and hearing, while at the same time the receptivity of the sensorium is increased by proper stimulation. The effect thus gained is not necessarily evanescent. Due heed should also be given to the general bodily condition. Nutrition must be improved and gouty and other morbid

tendencies antagonized. The question of influencing the mind to the profit of the patient is certainly an important problem in neurology, and one well worthy of discussion. In concluding his paper, Dr. Corning referred to the loss of prestige which has apparently overtaken hypnotism, and which in too many instances only served to substitute a veritable neurosis for the morbid condition which it was sought to modify.

Dr. W. H. THOMSON said that his own plan in the treatment of melancholia has been not to appeal to the will of the patients at all; it is only discouraging to them to tell them to think less of their condition; their train of thoughts should be involuntarily changed by new objects brought to their senses, either through the eye or the ear. By means of a change—using the word in its broadest sense—a change of scene, of surroundings and of society, we should endeavor to produce an involuntary displacement of the morbid ideas.

Dr. PARSONS said that while in his opinion the principal means we have of influencing the mental state are by a correction of the bodily conditions and habits, change of surroundings, etc., yet the suggestions made by Dr. Corning are of value in certain cases, especially when the person who gives the advice is capable of exerting a strong personal influence over the patient.

Dr. WILLIAM A. MACY said the suggestions made by Dr. Corning were of value in certain cases, such as mild forms of melancholia, where the patients are still able to be controlled or influenced by the suggestions of others. After the patient progresses beyond this stage and has delusions, comparatively little can be done for him in this way. In the early stages of functional nervous trouble, suggestions, encouragement, change of scene, etc., are everything to the patients; they are even more important than medicines.

Dr. E. D. FISHER said that Dr. Corning's suggestions probably referred to the functional rather than to the organic nervous disease. There is no doubt that the minds of these patients can be influenced by suggesting pleasant ideas, or bringing new scenes before them. This requires training and discipline. In all forms of nervous diseases the emotional state is the one first affected, and it is in this stage that the suggestions made by Dr. Corning are likely to prove of service.

Dr. CORNING, in closing the discussion, said that in his paper he referred to functional cases. Most of the

organic cases are not amenable to any form of treatment. His object in bringing up this subject was to show that something can be done to modify the mental state of the patient: it cannot be relied upon entirely, but should be combined with proper medication, with stimulants, dexterously given, with hypernutrition, rest, etc., as any or all of these are indicated. In this way we may prevent a melancholic from going from bad to worse if there is no organic trouble behind the functional disturbance.

ERGOT IN THE TREATMENT OF PERIODIC NEURALGIAS.

Dr. WILLIAM H. THOMSON read a paper on this subject, in which he gave the histories of a number of cases of severe periodic neuralgias in which the symptoms were promptly relieved by the use of ergot in large doses. In all of these cases the disease was of long standing, and the usual remedies had been employed without avail. Dr. Thomson said his method of administering the ergot in migraine was as follows: The fluid extract of the drug is employed, combined with an equal quantity of elixir of cinchona, to obviate its tendency to cause nausea. Two drams of this mixture is to be taken in water as soon as the premonitory symptoms of the headache are noticed, and the patient is advised to lie down and keep very quiet. If, after an hour, the headache continues, a second similar dose is taken, and then a third in another hour if necessary. As nausea is such a general accompaniment of this affection, it is provided that if either of the doses be vomited, it should then be taken in an enema of two ounces of water. This medication, the speaker said, rarely fails to arrest the attacks, even in long standing cases, and with a preventative course of intestinal antiseptics in the intervals, the relief from the malady has often proved permanent. The following is the history of one of the cases reported by Dr. Thomson: The patient was a young man who suffered from head aches beginning at the occiput and extending to the temples; they generally came on about 11 A. M. daily, and gradually grew worse until they reached their acme about four o'clock in the afternoon, after which they subsided, without, however, entirely disappearing. His physician failed to check their increasing severity, although on one occasion he administered thirty grain doses of chloral with thirty grains of potassium bromide

every two hours for two doses, with little more effect than a slight drowsiness being produced. The next day, the patient becoming maniacal from the pain, sixty-five grains of chloral, sixty of bromide and thirty of antipyrin were given within two hours. This caused a profuse sweating and moderate sleep. The third day a consultant was called, who recommended that quinine and Warburg's tincture (which had been tried at the beginning of the treatment) should be resumed in large doses. Accordingly, sixty grains of quinine and two ounces of Warburg's tincture were given in twenty-four hours, with even worse afternoon paroxysms of pain than before. The next day the bromide, antipyrin and chloral were resumed, but no great relief was obtained. At this time he was seen by Dr. Thomson, who recommended dram doses of the fluid extract of ergot every hour for three doses, combining the first two doses with ten grains of quinine, and if his stomach rejected either of the doses, that the medicine be given per rectum. Soon after taking the first dose the patient experienced a good deal of relief; the second dose was vomited, whereupon it was given per rectum, and this was soon followed by a complete subsidence of the pain, with profuse perspiration. This medication was repeated for three successive days with final cure of the headaches. The second ten grains of quinine produced decided symptoms of cinchonism.

Dr. JOSEPH COLLINS said he had already heard Dr. Thomson recommend ergot in the treatment of periodic neuralgias, and has recently had occasion to try it in several cases. In one case, the patient had been given huge doses of Warburg's tincture, quinine, potassium bromide and iodide without any benefit. He was then given dram doses of ergot and a marvellous improvement at once followed. This was three months ago, and the man has had no return of symptoms since. In another case, the patient was a lady, aged 40 years, who had long been under treatment for migraine, the pain being of a boring character and very difficult to relieve. In this case, the value of ergot in the treatment of this affection was discovered accidentally; it was given to check a menorrhagia and at the same time it relieved the headaches.

Dr. C. A. HERTER said that in the treatment of these cases he lays greater stress upon the diet and nutrition than he does upon drugs. He employs very few drugs, chiefly aconitia. He is decidedly opposed to the use of

the antipyretics. If ergot does relieve these severe periodical headaches, which are often very intractable, it is certainly a great boon.

Dr. CORNING said it is important to determine whether the pain is extra or intra-cranial. He referred to the value of compressed air in relieving intra-cranial pain. External pains, on the other hand, are aggravated by the compressed air treatment.

Dr. THOMSON, in reply to a question, said our present knowledge is not definite enough to form any idea as to how ergot acts in these cases. He simply gave it as an empirical remedy. Furthermore, his paper referred entirely to neuralgias that are definitely periodical. These are usually very severe and entirely different from the ordinary intermittent headaches. He referred to the fact that quinine, even in small doses, when it is combined with ergot, appears to produce cinchonism much more quickly than when given alone. In only one of the cases reported was there any antecedent history of malarial infection, and in that case the patient simply had resided in a malarious district. Very likely there was a malarious element in the other cases, of which the nervous symptoms were the only manifestations. Dr. Thomson also referred to the fact that intercostal neuralgia is often accompanied by sciatica; also the occurrence of sciatica after pleurisy. The latter combination he has noticed in about twenty cases.

Dr. STARR referred to the indefinite character of occipital headache. In some recent articles published in "Brain," some light has been thrown on this subject, the point being to make accurate observations of the distribution of the pain, and then attempt to associate that distribution of the pain field with some organism of the body distant from the pain field, but connected with the same segment of the nervous system that is connected with the nerve in which the pain is felt. Pain in the back of the head must, in the majority of cases, be associated with irritation in the domain of the occipital nerves, or rather of the upper fourth and fifth cervical segments of the cord, which have extensive connection with other parts of the body through the sympathetic system. Perhaps, if these observations are further extended, they will explain why in so many cases of stomach or intestinal disturbances the pain is felt not where the irritation occurs, but in the head.

PHILADELPHIA NEUROLOGICAL SOCIETY.

Stated Meeting, October 23, 1893.

The President, Dr. CHARLES K. MILLS, in the chair.

UNILATERAL SWEATING OF THE FACE AND
NECK IN A PROBABLE CASE OF POSTER-
IOR SCLEROSIS OF SLOW DEVELOP-
MENT.

Dr. MILLS exhibited to the society this patient, E. R., 56 years old, white, who dates the beginning of his present troubles to an attack of grip three years ago, although this origin may be regarded as doubtful. He began to have what he termed rheumatic attacks in the legs; pains coming and going, but without any joint swellings. He does not describe his pains as having been shooting or lancinating, but rather as decided aches. Five or six times, however, during the last three years, he has had attacks of extremely sharp cutting pains across the left half of his chest, chiefly about the precordial region. These pains come in storms of agonizing severity, and he says that when the attacks are on he becomes delirious through his sufferings; as described, they correspond closely to the so-called "crises" of posterior sclerosis. In 1891, he was examined by Dr. John E. Carpenter, who again examined him a few days ago, and who reports that the same conditions are present now as then, namely, Argyle-Robertson pupillary reaction; constant myosis; poor vision brought up to normal by high astigmatic correction; ocular movements normal, and no signs of optic atrophy. Knee jerks are practically abolished, although a slight jerk can be brought out on the left with reinforcement; muscle jerk is present on the right, but absent on the left. His station is good and he has no ataxia of arms or legs. He presents the very curious feature of unilateral sweating on the left side of his face and neck. At times he also has a slight flushing or blushing of this side of the face. The case seems to point to an exceedingly prolonged first stage of posterior sclerosis. The unilateral sweating and blushing may be due to a patch

of sclerosis in the cervico-dorsal cord; or in the posterior ganglia, or perhaps in the left cervical gangliated cord. The case, in so far as the unilateral sweating and chest pains are concerned, recalls one presented to the society a few years since, which eventually proved to be thoracic aneurism; but, examination of the chest in this case is negative, and the combination of symptoms points to spinal degenerative disease.

Dr. MILLS also exhibited a case of MIRROR-WRITING. (see page 88).

DISCUSSION.

Dr. G. BETTON MASSEY.—A patient of mine, an artist, saw the programme of this meeting and asked what was meant by mirror-writing. I explained, and he remarked that he thought that he could do that. I have here a series of simultaneous both-hands writing which he did.

The first exhibit consists of words written simultaneously with each hand in the proper direction.

In the second, the right hand writes the word properly, while the left writes it reversed.

In the third, the right hand writes upside down and reversed, and the left hand upside down and backward.

In the fourth, one word is begun from the right and written upside down and another from the left upside down, backward and reversed.

Dr. F. X. DERCUM.—I find like Dr. Taylor, that I can without difficulty write in the reversed direction with the left hand, but if I attempt to produce mirror-writing with the right hand, it is accomplished with great difficulty. There seem to be physiological and anatomical reasons why mirror-writing should be adopted by children in whom the right brain has apparently assumed the principal functions of the left brain.

Dr. JAMES HENDRIE LLOYD.—I would suggest that the physiological action of the flexors and extensors of the arm probably has as much to do with the form of writing as anything else. In writing, the arm rests on the ulnar side. Hence the line or direction of least resistance, as it may be called, is away from the median plane of the body. So, too, the inclination of the letters will be fore hand or back-hand according as the pen is held in the right or left hand. This is due to the nat-

ural action of the flexors and extensors of the hand when the arm rests on the ulnar side with the elbow-joint as a centre.

DR. S. SOLIS-COHEN.—In the Hebrew and some other ancient forms of writing, the characters are made from right to left. The reason probably is that the original crude-outline pictures were engraved on the rocks and on blocks of stone, the chisel being held with the left hand and the mallet with the right, and thus the natural method of progression was from the side on which the blow was struck, *i. e.*, right to left. When these characters were subsequently transferred to parchment or papyrus, the same direction was followed. If I am correct as to the reason for its original adoption, the fact, I think is in the line of Dr. Taylor's thought, that the mirror-writer goes from right to left, because that is the direction in which the left hand is most easily carried.

DR. F. X. DERCUM.—We have here something more than writing from right to left. We have in addition a reversal of the form and position of the letters.

DR. A. A. ESHNER.—I think that Dr. Mills in speaking of the natural tendency to centrifugal movement, at one point in his paper, brought out the explanation of this peculiarity of the hand-writing. The ordinary motions of the hands are made in the direction of least resistance, that is, those of the right towards the right, and those of the left towards the left. The phenomenon must be purely a motor one of the co-ordinative mechanism. In writing with the left hand it would seem easiest to transfer to that side the same sequence of stimulation and movement, as ordinarily occurs in using the right hand for the same purpose. That the peculiarity is essentially one of accommodation, would seem to receive support from the fact that, persons who write with the left hand and have their central hemispheres intact, slant the letters in the same direction as this boy does. In the latter, however, the governing mechanism is sufficiently well organized to overcome the natural tendency to compensatory aberration.

DR. CHARLES K. MILLS.—I think that the suggestion of Dr. Taylor that any one can write in this manner, would, on experiment, be found to be incorrect. While it is true that Dr. Taylor can do this, we must remember that while ambidextrous, he has a certain use of both sides of his brain which is not possessed by the average man. Dr. Taylor is also an artist. In my paper,

I have referred to the various explanations that have been given and also mention Hebrew writing. This is not the same as mirror-writing. Looking at Hebrew written in the mirror, would not give you the normal appearance of the letters. In the discussion too little stress has been laid upon the functioning of local areas of the brain itself, and upon the question of the formation of word images in the brain and the peculiar manner in which the consciousness of the image is registered upon the child's brain. This boy's left hemisphere is probably out of use. It would be interesting to know exactly how the word image appears in his consciousness.

Dr. S. SOLIS-COHEN.—In discussing the question of natural writing we must consider the effect of imitation. If we were to take a world of left-handed people, probably all of the writing would be what we term mirror-writing. If then, a right handed man came among this people, his writing would be mirror-writing to them, unless he attempted to imitate their letters exactly, in which case his writing would have a backward slant. When a left-handed person comes into our world of right-handed people, he either writes mirror-fashion, as in the case cited by Dr. Mills, or he attempts to imitate the usual writing, and gives a back-handed slant to his letters. Coming back to those languages in which the writing is from right to left, of course the writing is not mirror-writing. It is not a reversal of itself. The question is, why does it take an awkward and apparently unnatural direction? The answer is that it was not originally unilateral dexter-handed writing upon parchment or other smooth surface, but a process of sculpture, requiring the use of two hands. The graving instrument being held in the left hand, the letters followed the natural line of the movement of that hand; the letters were thus cut from right to left and when imitated on parchment, were imitated in the same direction. It is significant in this connection that in such ancient writing there is no cursive hand. The letters are set down one after the other, by what is virtually a process of drawing and painting. It might not be impossible for right-handed persons to develop an alphabet or method of writing in which letters running into each other should require the hand to move from right to left, but it evidently was not readily developed as it does not exist. Again, in some of our present Roman characters, we

can trace mirror-pictures of the Semitic characters from which they have been derived. This seems to be because the right hand found it easier to make them reversed than like the original, just as most children and illiterate persons reverse the Roman S, making it 5.

Dr. WHARTON SINKLER.—It seems to me that there is something more than a mechanical difficulty in these cases. I recently saw a boy who is a little retarded in his cerebral development. He has been taught to read in words of three or four letters, but when he is tired, it frequently happens that he pronounces a word backwards, for instance the word "ton" may be pronounced "not," or the word "so," "os." That is evidently a defect in cerebration and not a mechanical difficulty. It seems to be an analagous condition to mirror-writing.

Dr. A. A. ESHNER.—In Dr. Sinkler's case, but a single visual impression was made upon the brain, and the direction in which it was viewed is of secondary significance, while in the case of Dr. Mills there are two distinct visual impressions. The boy sees the one picture and, through the motor mechanism, reproduces it in the simplest way.

Dr. J. MADISON TAYLOR.—It does not seem to me that mirror-writing can have a large significance, for writing with the left hand is not a difficult feat, provided that one writes in that fashion, viz., from right to left—reversing all the letters. I find that I can do this readily and rapidly, and do so on the blackboard before you. And further, the peculiarities of chirography are essentially my own. To write correctly from left to right is far from easy, however, and the result does not resemble my usual characters.

It would seem that to write at all with the left hand, to imitate the ordinary script of a right-handed person, one forms letters in a natural and easy *reversal* of the usual curves and lines pursued by the right hand, which have only become so by long pursuance of similar methods, and one of which comes the commonly accepted shapes and turns. And that as the left hand forms the curves there is merely a following along the lines of least resistance. For instance, it is a usual and an easy exploit to take two bits of chalk, one in each hand, and to draw a figure which has similar curves, as a butterfly with outstretched wings,—the two sides of the figure can be swiftly made by each hand at the same time.

Except for a lack of familiarity in holding a pen in my left hand, I can write very readily in imitation of the mirror-writing, and yet I trust no abnormality exists in my motor centres. On the contrary, I should infer, that my motor centre nerves were rather nimble to enable me to imitate my right-handed and accustomed methods by my left hand and reverse motor centres.

In the boy here exhibited, there may be right-handedness uncultivated, because his right arm has suffered damage; hence, he makes an unconscious selection in the easiest method of imitating this by his left hand, working at his greatest ease which is a reversal of direction and curves. He may be dimly aware of this, but his lack of intelligence prevents his being able to describe why he does so.

Dr. J. MADISON TAYLOR read a paper on
EXOPHTHALMIC GOITRE.

DISCUSSION.

Dr. G. BETTON MASSEY.—It seems to me that too much stress is laid by the reader of the paper, upon the thyroid portion of the disease, and also upon the positive relation of the sympathetic nervous system to the affection. The clinical studies that I have made, show me plainly that the sympathetic system has rather a negative relation to the disease. It is true, there is a relative over-action of the sympathetic system, or a loss of balance, but may not this loss of balance be due to a parietic neurosis of the spinal centre?—a mere prominence of the sympathetic vasomotor activity, by reason of its not being held properly under control by the opposing system. Hence, it is not a disease of the thyroid, and thyroid juice is hardly a method of curing so general a disease.

I agree with Dr. Taylor, that this is a far more curable disease than ordinary enlargement of the thyroid gland. I have seen several cases cured. Quite a notable one was sent to me in 1881, by Dr. Mitchell, for electrical treatment. The patient was a young lady with prominent eye-balls, a pulse of 140, and quite prominent thyroid. Under treatment continued for two years, she recovered not only from the affection of the heart, the pulse going down to 80 and losing its peculiar swelling character, but the eyes became normal in projection, and the gland very slightly above normal in size.

I think that the doctor, while enumerating many valuable means of treatment, dwelt too lightly on the use of the galvanic current. The use of the galvanic current presents possibilities of propriety and impropriety far greater than any other single therapeutic agent. We should not lightly say that a certain definite use has exhausted its possibilities. The case to which I have alluded was treated entirely by gentle galvanic currents applied both to the cervical region of the spinal cord and to the gland itself. In later cases, I have added to this, very heavy currents to the spinal region, with one pole at the pit of the stomach. I am quite convinced that the aberrant spinal impulses which fail to control in this disease, are directly stimulated by this treatment. I have seen the pulse go down immediately after the application. (Adjourned).

Book Reviews.

A DICTIONARY OF MEDICAL SCIENCE. Containing a full explanation of the various subjects and terms of Anatomy, Physiology, Medical Chemistry, Pharmacy, Pharmacology, Therapeutics, Medicine, Hygiene, Dietetics, Pathology, Surgery, Bacteriology, Ophthalmology, Otology, Laryngology, Dermatology, Gynecology, Obstetrics, Pediatrics, Medical Jurisprudence and Dentistry, etc., etc. By Robley Dunglison, M. D., LL. D., late professor of Institutes of Medicine in the Jefferson Medical College of Philadelphia. Edited by Richard J. Dunglison, A. M., M. D. New (21st) edition, thoroughly revised, greatly enlarged and improved, with the Pronunciation, Accentuation and Derivation of the Terms. In one magnificent imperial octavo volume of 1181 pages. Cloth, \$7.00; leather, \$8.00. Philadelphia: Lea Brothers & Co., 1893.

Dunglison's Medical Dictionary has stood the test of many years, and was for a long time the only American dictionary of medical terms in the English language. The first edition was published sixty years ago. The present attractive volume is the twenty-first edition, and has many features which will at once commend it to the medical profession. It is claimed that forty-four thousand new words and phrases have been added, and this statement cannot be doubted when we compare the work as published in 1874 with the one now before us. For the first time pronunciation has been introduced, being indicated by a simple and clear phonetic spelling. Under Diseases, are given their symptoms and treatment; under Drugs, their properties and doses; under Poisoning, the symptoms, antidotes and treatment. The author states that it has been his fundamental purpose "to make the work not a mere lexicon of terms, but to afford under each a condensed view of its various medical relations, and thus to render the work an epitome of the existing conditions of medical science." It may be safely said that it will prove an indispensable book for medical students and practitioners, and those concerned with any of the medical sciences.

INTERNATIONAL CLINICS. A QUARTERLY OF CLINICAL LECTURES ON MEDICINE, NEUROLOGY, PEDIATRICS, SURGERY, GENITO-URINARY SURGERY, GYNECOLOGY, OPHTHALMOLOGY, LARYNGOLOGY, OTOTOLOGY AND DERMATOLOGY. By professors and lecturers in the leading medical colleges of the United States, Great Britain and Canada. Edited by J. M. Keating, M. D., Judson Daland, M. D.; J. Mitchell Bruce, M. D., F.R.C.P., and D. W. Finlay, M. D., F.R.C.P. Philadelphia: J. B. Lippincott Co., 1892.

The first volume of this series for the past year contains lectures by Charcot, Mackenzie, Dercum, Pershing, Pritchard and Sachs. The substance of the lectures is presented in an attractive manner, the desire of each individual lecturer being apparently the presentation of a good resumé rather than a critical handling of his subject. Dercum's lecture on paralysis agitans is enhanced in value to the reader by five photo gravures representing the attitude of the sufferer in different stages of the disease. Sachs considers the subject of general paresis and devotes two lectures to the clinical aspects and variations of this disease. Several interesting examples of the manifestations of inter-cranial tuberculosis are given by Pritchard.

In the second volume, Starr devotes a part of his lecture to Jacksonian Epilepsy and continues with a case of molar aphasia and hemiplegia, a subject to which Pershing gave his attention in the preceding volume. Lloyd gives some interesting details of cases of sporadic cretenism and devotes a second lecture to a consideration of alcoholic multiple neuritis and acute locomotor ataxia. A lecture on cerebral tumors by Gibson is illustrated by a few good wood cuts, showing the nature and seat of the lesions in one of his cases. Dercum points out some interesting facts in connection with sunstroke sequellae and cerebellar titubation.

The third volume is one of the best of the series. Drs. Deaver and Lloyd give a lengthy discussion on trephining for focal epilepsy and for brain tumour and Charcot considers the diagnosis of brachial monoplegia, while Rohé speaks of some common types of melancholia. Walton has an instructive discourse on types of gross impairment of motion in the upper extremity and Starr closes the neurological contributions to this volume with a lecture on the muscular atrophies and contractures in locomotor ataxia.

The fourth volume is fully abreast of its predecessors and contains a number of lectures by such well known teachers as Pepper, Gray, Dana, Putnam, Hammond, Gibson and others.

We have had occasion to remark previously in speaking of this series, that it was of service in giving to general practitioners, a large amount of knowledge in a convenient and assimilable shape and as such was appreciable and commendable. The value of many of the lectures

would have been enhanced if the authors had handled their subject with a critical spirit and so have given to their productions a stamp of individuality, a factor which is the keystone in didactic teaching. J. C.

THE TECHNIQUE OF POST-MORTEM EXAMINATION. By Ludvig Hektoen, M. D. With 51 illustrations. Chicago: The W. T. Keener Company, 1894. Price \$2.

This little work speaks for itself. It does not require a long introduction. There are a number of guides for post-mortem examinations on the book market; but none of them can compete with Dr. Hektoen's Technique.

The introductory chapter contains a number of valuable hints on the preparation for post-mortems (requirements in private houses), on embalmed and frozen bodies, on the record (with a sample of a report of post-mortem examination to the coroner) and the early steps in the preparation of material for microscopical and bacteriological purposes. After a very valuable chapter on the treatment of wounds acquired during dissection (written by Dr. Weller Van Hook), Dr. Hektoen closes the introduction with statistical data and a description of the special instruments and appliances (fig. 1-13).

The "Examination of the Body" treats the subjects in the order of the examination itself. The descriptions of the methods are short but full of practical suggestions and profusely illustrated. He who has made a post-mortem strictly following the rules given here, may be satisfied that he gave himself a chance of seeing and inspecting everything in the best possible way. Eight illustrations assist the description of various methods of dissecting the head and its cavities; fig. 22 shows the long anterior incision; the dissection of the heart is given with 6 drawings; the lungs and the organs of the neck are reproduced in 3, and the kidney in 2 drawings. The removal of the intestines, the opening of the small intestine along the mesenteric border and the section of the liver are the subjects of the next three drawings. The text is very clear and interesting even for him who has considerable routine in making post-mortems. It is not an accumulation of unconnected data, but given so that one link follows the other with a certain necessity.

A chapter on the examination in cases of suspected poisoning, another on the examination of new-born children (4 figs.) and finally one on the restoration of the body (1 fig.), complete the work.

The drawings are mostly excellent, made after photographs, and very instructive.

The value of such a methodical work for medico-legal cases cannot be overrated. It is very probable and at any rate most desirable that it should be adopted as a compulsory plan for such cases. With the practitioner and the student it will no doubt become the most popular guide. It is evident enough that only a methodical post-mortem can be of use and instructive for the physician. A. M.

Miscellany.

HYDROLEINE IN NEURO-TROPHIC DISORDERS.

The value of Cod Liver Oil in the treatment of all wasting diseases is perhaps generally understood and fully appreciated, but it is safe to say, there are none who can predict that Cod Liver Oil can be utilized successfully in a given case, or that it can be tolerated much less digested, especially, if that case be an adult. It is, perhaps, potent to all who read these few paragraphs, that if it were possible to so aid this wonderful reconstructive in a way that it is more easily digested and assimilated, and so that any one would be able to take it, that such a preparation of Cod Liver Oil would be a boon to suffering humanity. There is hardly an article for the sick more valuable and yet so commonly detested for its disagreeableness and indigestibility.

The following formula represents the amount of two teaspoonfuls of one hundred and twenty drops of hydroleine:

Pure Norwegian Cod Liver Oil	80 m. (dps.)
Distilled water	35 "
Soluble Pancreatine	5 grains.
Soda	$\frac{1}{2}$ "
Salicylic Acid	$\frac{1}{4}$ "

Emulsions of Cod Liver Oil are of incalculable value in the direction of making it more palatable and easier of assimilation—but in Hydroleine we have more than a simple emulsion, we have an attempt at predigestion. There is evidently something accomplished in this direction, for assimilation of the oil is accomplished very thoroughly, as an examination of a patient's stools who take it will give but a trace of oil. Of all preparations of Cod Liver Oil, this one of hydroleine will also prove less disagreeable, as shown by a lessened tendency to eructations and complaints of its souring on the stomach.

In Hydroleine, we have a combination which seems to me to make available this valuable reconstructive and to enable us to use it as a flesh and strength increaser more

universally and with confidence of the results. It has been our good fortune, at least, to find it a most universal success when properly recommended, and it may be pertinent here to make a few suggestions:

1. Never prescribe large doses in the beginning—a good guide is, the relation the patient's stomach bears, at the moment, to that of a perfectly normal one in reference to digestion.

2. A small dose (3 i) with a small dose (3 i) of whisky and milk (3 i) three times a day is undoubtedly a rapid flesh producing combination.

3. If any sourness or visage of eructations, a tablespoonful of lime water added will remove the trouble.

4. Persist in the fact that it must be taken for a long time.

The list of neuro-trophic disorders in which Cod Liver Oil is not applicable, is yet to be prepared, not even excepting obesity. There undoubtedly seems to be a specific influence engendered in the quality or force of neuro-trophic influences—and it seems to me that we are prone to overlook this important fact solely on account of the uncertainty in the digestion or acceptableness of this specific reconstructive Cod Liver Oil.

A LETTER FROM JAS. I. FELLOWS.

Owing to the dishonest attempts that are persistently being made to counterfeit my Compound Syrup of Hypophosphites, I find it necessary to write and ask your kind co-operation in my endeavor to check a method of business which, to say the least, involves considerable risk both to medical men and their patients, and at the same time tends to injure the reputation of a valuable remedy.

As I have heretofore explained—though the fact may have escaped your memory—the distinct peculiarities of Fellows' Syrup consist in its freedom from acid (which in the various imitations is frequently used, in order to hold the ingredients in solution), and in its ready decomposition on exposure for a short time to air, light, or

heat. This facility of decomposition is of great value during the process of digestion, for by its means the chemical agents contained in the syrup are quickly broken up and changed into a form in which they can be readily assimilated by the blood and tissues. On this account, Fellows' Syrup of Hypophosphites has never been dispensed in bulk, but always in hermetically-sealed bottles containing a limited quantity (16 fl. oz.).

I shall be glad if you will kindly allow me, at the risk of being tedious, to bring once more before your notice the special peculiarities in the method of putting up Fellows' Syrup, in order that you may have no difficulty in distinguishing it from the various inferior substitutes that are frequently offered in its place.

1. The bottle is enveloped in a bright yellow wrapper, bearing in watermark the words "J. I. Fellows, St. John, N. B.," and with a copy of the original label printed upon it in black.

2. Within this wrapper is a white printed paper giving directions for use, and containing, also, copies of the earliest medical testimonials in favor of the Syrup.

3. On the front of the bottle is the now well-known label, bearing across its face a fac-simile of the inventor's signature.

4. The bottle is hermetically sealed with a transparent crimson preparation.

5. The words "Fellows & Co., Chemists, St. John, N. B.," are blown into the glass.

6. On allowing the Syrup to remain undisturbed for forty-eight hours, a flocculent brown precipitate of hypophosphite of manganese becomes visible.

Finally, it may be mentioned that the preparation is never advertised in any way to the public.

Since the year 1865, when this compound was first invented by me, no change whatever has been made in its formula or mode of preparation—none having been found necessary. And it is a significant fact that, in bringing out a counterfeit, no advertiser ever claims that his own is an *improvement* on Fellows' Syrup, but

merely states that it is "just as good," and seeks patronage for it on the ground of its comparative cheapness. Now, in regard to the latter point, I may remark that the preparation of Fellows' Syrup necessitates great expense, as well as extreme care, in order to secure both *uniformity* and *stability* in its composition; and it would not be possible to produce it at a lower cost without sacrificing the important and distinctive peculiarities to which alone it owes its reputation. Moreover, the attempt to reduce the cost of production would not only mean an immediate deterioration in the character of the preparation, but would inevitably end in disappointment to the physician who prescribed it, and, possibly, in danger to the patient for whom it was prescribed. A great deal is said by advertisers at the present day as to the advantages of cheap medicines; but it requires little penetration to see that economies effected in this direction will be dearly purchased, if the evils to which I have above referred are the outcome of them.

In conclusion, I may remark that probably no one pharmaceutical preparation has ever been recommended by the medical profession to such an extent as Fellows' Syrup of Hypophosphites. I have in my possession nearly a thousand letters testifying to its beneficial effects, which have been sent to me during the last few years by medical men in all parts of the world. This fact speaks for itself.

With many apologies for troubling you once again on this subject.

TEN CHANCES TO ONE!

If you are feeling nervous, low spirited, have a headache, sour stomach, growing thin, feeling weak, can't sleep, catch cold easily, you will be scared by reading some frightful tale into believing that you have consumption, grip, or are threatened with nervous prostration; don't you believe it. A disordered stomach will cause all of those difficulties, and more too. Burnham's Clam Bouillon is a delicious food, that is better than drugging. Diet on it for three days, and if your case is chronic, use it longer. You will discover its wonderful curative properties and enjoy the process.

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THE
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Original Articles.

ANATOMICAL REPORT ON THE BRAIN OF A
BOLIVIAN INDIAN, WITH A STUDY OF
CORTICAL THICKNESS.

By CHARLES L. DANA, M.D.

THE individual from whom this brain was removed was a full-blooded Indian, born in Bolivia, age 30 years, height 6 feet 7 inches, and weight over 300 pounds. He was a case of acromegaly and full details of his history were given in this JOURNAL for Nov., 1893.

I have hoped that a careful study of the convolutional development of this brain might have some anatomical and anthropological interest. So far, little has been accomplished in the attempts to make out sexual, intellectual, moral, or racial distinctions in the brains of men. But the study is still in its infancy and more has been done and more can be expected by investigating racial characters than in the other directions. While these notes may not of themselves have absolute value, they may in the future prove helpful in connection with the observations of others.

The weight of the brain was 53 oz, the brain being thoroughly dry, and freed from the dura.

The shape of the brain was conformable to its meso-

cephalic skull, the cephalic index of which was 73. There were no peculiarities or deformations that would strike one at first glance except a deep vertical indentation running up and down the tip of the right occipital lobe, and this, as Bastian has shown, is not very rare. The total length from frontal to occipital pole was 18.7 cm., its breadth 13.5 ($7\frac{3}{8} \times 5\frac{1}{4}$ in.).¹

Fissuration.—The fissures are, on the whole, rather clearly marked and the convolutional development a simple one. There is, however, this peculiarity: The fissures are cut into by numerous short off shoots or clefts, due to sharp angular changes in the course of the fissure. This is shown in the photographs, but not at all well. The fissure of Rolando has eight of these

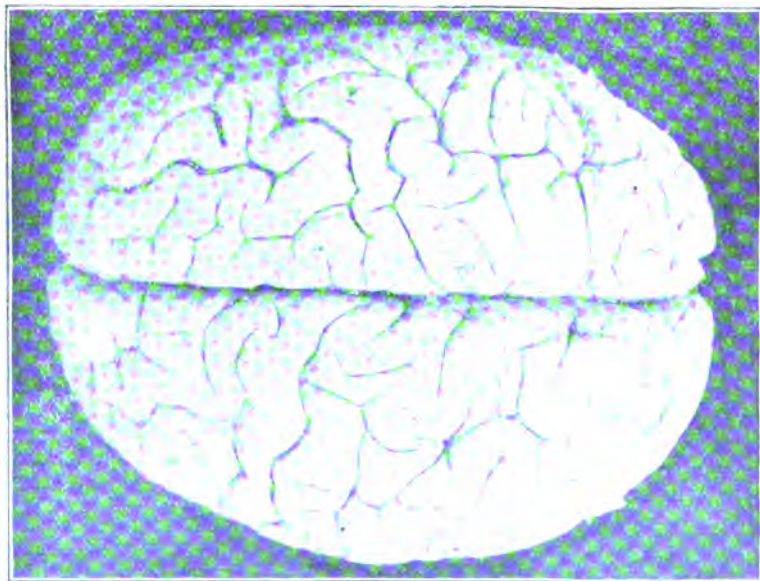


FIG. 1.

clefts on the right side, five on the left. In other brains, I find only three or four. The Sylvian fissures have five and nine, the temporal and parietal nine to eleven of these short clefts. It gives the brain a peculiar highly fissured appearance.

¹ The average range (Krause) is, length 16.2-17.2, breadth 12.3-14.2, height 10.2-10.5.

General course.—The brain has many transverse markings, such as Bastian affirms to be characteristic of the Mongolian brain. The Indian, in my opinion, belongs to that race. On the left cerebral hemisphere I note ten and on the right eight fissures running nearly transversely (see below). The angle formed by the fissures of Rolando is very obtuse (75°); the detailed description of these I give below.

Confluence.—There is a somewhat excessive confluence of fissures. Thus the fissure of Sylvius on the left side has four confluences, on the right, one.

Fissure of Rolando	3 and 1 respectively.
Parieto-occipital	1 and 1
Inter-parietal	1 and 2
First temporal	2 and 2
Second	2
Third	2 and 1
Fourth	2

Of these, the confluences of the Sylvian fissures and of the parieto-occipital are rare.³

Continuity.—The *right inter-parietal* fissure is broken in three parts; the left is continuous.

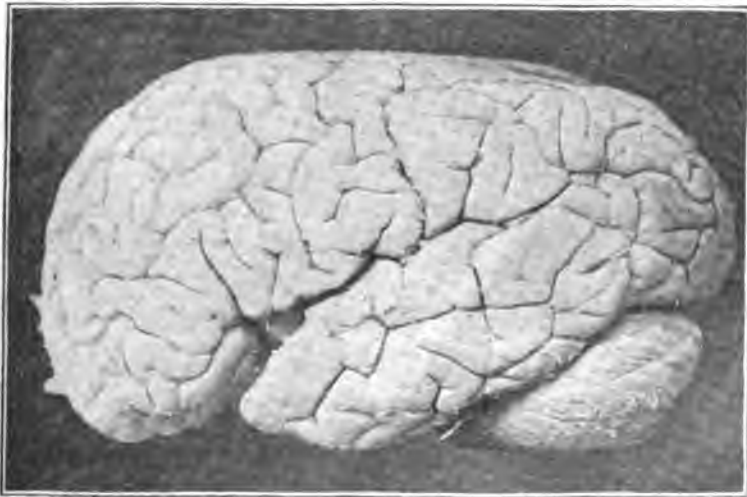


FIG. II. LEFT HEMISPHERE.

³ The rich fissuration of the medi-frontal, said by Benedickt to be found in criminal brains, is not noticeable here.

I have seen this fissure broken in three parts on each side in the brain of a negress, and it, perhaps, indicates a low type.

The *left first temporal* has a separate ascending branch.

The *left second temporal* is broken in four parts, as often occurs; the right is continuous, and this is unusual.

The *left third temporal* has three parts, the right two parts.

The fourth temporals are continuous.

The *right sub-frontal* (calloso marginal) is composed of three parts, as is not very rarely the case; the left is continuous.

On the whole, it cannot be said that the fissures are excessively broken.

Length of fissures.—The Sylvian fissure is longer on the left side, as is the rule, and is longer than the average, 9.5 left and 8 ctm. right, as compared with the average of 8.5 and 7.28 (Eberstaller). The posterior ascending branch is also longer than the average (3 and 3.2 as compared with 2.2 and 2.4).

The great length of this fissure and its connection with the first temporal is thought to be an evidence of retroversion, as it suggests the anthropoid type (Eberstaller).

The *fissure of Rolando* is longer than the average, being 12 for the left and 11.5 ctm. for the right side, as against an average for males of 11.3 (Eberstaller). The fissures represent the absolute length as measured by a moistened thread. This unusual length may be in relation with the great muscular mass of the individual.

Position of fissures and size of frontal and occipital lobes. The portion of the fissures of Rolando is of especial interest. The distance from the trigonum to the upper end of the fissure is 22.5 ctm., from the trigonum to the occipital pole 35 ctm. The average figures are 22 and 33.6 for males (Eberstaller). According to this, therefore, the fissure of Rolando is relatively further forward than the average, and the frontal lobe, judged by this, is *relatively small*. The angle made by the fissure with the longitudinal fissure is 75° . This shows it to be unusually obtuse; most authorities make the angle 67° (Wilder), Eberstaller makes it 71° to 75° .

The *parieto-occipital fissure* is 7.3 ctm. from the occipital pole, while the distance from the frontal to the occipital



FIG. III. RIGHT HEMISPHERE.

poles is 27 left and 30 ctm. right. This makes the occipital arc 25% of the total. The ratio given by Cunningham is 21 to 100. Hence I conclude that the *occipital lobe is relatively large*.

The distance from the trigonum to the parieto-occipital fissure is 27. The ratio of the occipital arc to the total arc is 1 to 5. The average ratio is 1 to 6 (Eberstaller). This, again, shows that the occipital lobe is large.

The *Island of Reil* on the left side is exposed and its convolutions are large. This is, perhaps, connected with a large development of the corpus striatum. The fissures on the lobes show nothing notable, except that they are few. I count only two deep straight fissures on the left and three on the right.

The *uncinate gyri* on both sides are very large. The left has three shallow fissures, the right, one.

The gyri measure 2.75 ctm. in width at the widest point. This suggests a large development of the centres for smell. The *olfactory lobes*, however, seem of about the normal size.

DETAILS—The measurements are in centimetres and were made, so far as fissures are concerned, with a



FIG. IV. BASE OF BRAIN.

moistened thread so that they represent the absolute length.

Fissure of Sylvius.

LEFT HEMISPHERE.

Length from ascending branch to posterior ascending branch. . 6
 Posterior ascending branch . . 3
 Total length. 9
 Anterior ascending branch. . . 3
 Anterior branch. 2.2
 Fossa 1.7
 Depth of fissure. 2
 Communications with post central, first temporal, inferior occipital, ascending branch of first temporal.
 An operculum exists at junction of inferior occipital, ascending branch of first temporal and lateral occipital.
 The Island of Reil is exposed.
 Temporal, anterior and ascending branches are of the Y type.

RIGHT HEMISPHERE.

Length from ascending branch to posterior ascending branch 5
 Posterior ascending branch. . . 3
 Total length 8
 Anterior ascending branch . . 3.2
 Anterior branch 1.75
 Fossa 2
 Depth of fissure 2
 Communication with post-central.

The Island of Reil is covered.
 Y type.

Fissure of Rolando.—The angle formed by the fissure with the median line was 71° for the upper third, 75° for the line drawn from upper end to lower end.

LEFT HEMISPHERE.

Total length. 12
 From frontal pole to upper
 end of F. R. 15
 From upper end to occi-
 pital pole. 12
 Confluences with
 superior post-central,
 inferior prae-central,
 inferior post-central.
 Depth 2
 No bridges.

 Number of short clefts . . 5
 Width of prae-central, con-
 volutions from. 2 to 2.7

RIGHT HEMISPHERE.

Total length. 11.5
 From frontal pole to upper
 end of F. R. 16
 From upper end to occi-
 pital pole 14
 Confluences with
 tertiary fissures in supe-
 rior parietal lobule.
 Depth. 2.3
 Same.
 A transverse inferior fissure is pres-
 ent.
 Number of short clefts . . 8
 Width of prae-central con-
 volutions from 2 to 2.5

Parieto-Occipital Fissure.

LEFT SIDE.

Length of external part. . . . 7.5
 Distance from trigonum. . . . 27.7
 Median part is long and straight
 It communicates by a deep fis-
 sure with the collateral fissure
 (T').

RIGHT SIDE.

Length of external part. . . . 7
 Distance from trigonum 27
 External part runs into ascending
 branch of temporal (anterior
 occipital of Wernicke).

The length of the occipital arc is to that whole distance from occipital pole to trigonum as one to five; Eberstaller gives it as one to six, hence the occipital lobe is larger.

Calcarine Fissure.

LEFT SIDE.

Is unbroken and extends around end of occipital lobe.

RIGHT SIDE.

Unbroken, extends around to a vertical fissure on posterior end of occipital lobe. This lies at the bottom of a deep depression 4 ctm. long. This indentation has been described by Bastian, and is due to pressure of the longitudinal sinus.

Inter-parietal Fissure.

LEFT SIDE.

Continuous.
 Confluent anteriorly with fissure of Sylvius.
 The anterior occipital branch (Eberstaller) is very short.
 The fissure runs over into occipital lobe without apparent break, but on cutting down I find, as I have always done, a shallow bridge.³

RIGHT SIDE.

Composed of three parts: a superior post-central, inferior post-central and parietal.
 The last or posterior division runs into the occipital lobe without a break and with no deep bridging gyrus that can be seen.
 It is confluent with the first temporal.

³ My observations in over 40 hemispheres quite agree with those of Wilder as to the anatomical character of the paroccipital fissure. It is always separated from the inter-parietal.

First, second and middle Frontal Fissures.—These are well defined with a good many tertiary fissures running into them.

Sub-frontal (Calloso-marginal).

LEFT SIDE.	RIGHT SIDE.
This is continuous and typical.	Broken in three parts—anterior, middle and posterior.

First Temporal Fissure.

LEFT SIDE.	RIGHT SIDE.
Confluent with fissure of Sylvius and second temporal. The posterior ascending branch (anterior occipital of Wernicke) is <i>separate</i> .	An unbroken fissure. The posterior ascending branch is confluent with the interparietal in two places.

Second Temporal.

LEFT SIDE.	RIGHT SIDE.
Broken in four portions. It is confluent with fissure of Sylvius and first temporal.	Is unbroken and runs back into occipital lobe—a rare condition.

Third Temporal.

LEFT SIDE.	RIGHT SIDE.
In three parts. Confluent with third temporal and mental part of parieto-occipital.	Continuous. No confluences.

Corpus Callosum.

Length, 8.5.
Thickness in centre .65.
At anterior end (knee) 1.1.
At posterior end 1.3.
The average thickness given by Krause is, in centre .6, at the knee .9, at the posterior end 1.4.

Crus.

Height of crista, left .6, right .6.
Height of crus at level of anterior corpora quadrigemina, left 3, right 3.

Weights of Different Parts and Ratios.

The brain with pia weighed 53 ounces.
Cerebral hemispheres 47.1 oz.
Pons and medulla 7.8 drachms.
Cerebellum 5.0 oz.
The two hemispheres weighed practically the same.
Ratio of cerebellum to cerebrum 10.6%.
Of cerebellum to rest of brain is 10.4%.
Huschka makes it as 13 to 87, or about 15%.

According to this, the cerebellum is very small. Meynert's figures, however, give the ratio of cerebellum to entire brain as 148 to 1383 (10.7%). Pflegers and Wechselbaum's figures are 148 to 1373, which gives about the same ratio.

I conclude that this case does not support the view that large men have disproportionately large cerebellums.

The pons and medulla, however, are relatively large, weighing 31.2 grammes, as against 22.83 (Meynert's average).

Thickness of the cortex.

Much, I believe, can be learned from studies of this subject, and hence I have devoted a good deal of time to careful measurements.

These measurements were made after the brain had been hardened in bichromate and alcohol, so that it had lost one-tenth in length and one-sixth in weight.

Donaldson states that 2% should be added to the measurements made of brains hardened in alcohol. He also states that 4% should be added to measurements made with compasses.

I made one series of sixty measurements from blocks taken from the centre of the convexity of the gyri. I believe that for practical and comparative purposes this is altogether the best way.

Donaldson recommends taking three measurements from each gyrus, one from the centre and one from each side about two-thirds down. A lateral measurement is doubled, added to the convexity measurement and the total divided by three. This gives the average for the gyrus.

I made a second series of over sixty measurements by this method. The averages were reduced somewhat, but I do not think the results were so accurate. The variations in thickness of the side of a gyrus are very great and depend much upon the cutting.

The figures that I adopt finally were averages from the two sets of measurements. If one add 6 per cent. to them, they can be fairly compared with the measurements made by Donaldson.

Leaving out the insula, *the average thickness of the*

* Bischoff gives the relative cerebellar weight for Germans, 12.9% for males, and 12.8% for females; French brains 12.8%. Krause gives the cerebellar weight as 169, and total weight 1461 (males). This gives a ratio of 11.5%.

cortex was 2.92 mm., which is exactly the normal as given by Donaldson. The six brains studied by Donaldson, however, were presumably of the lower, pauper-hospital class. The thickness of the cortex, therefore, must be considered about the average of that found in the uneducated classes at least. If I add the figures for the insula it brings the average up to 3.03 mm.

The thickness of the cortex in the different lobes of the brain is shown in the following tables :

Island of Reil 3.80

It was slightly thicker on the right side.

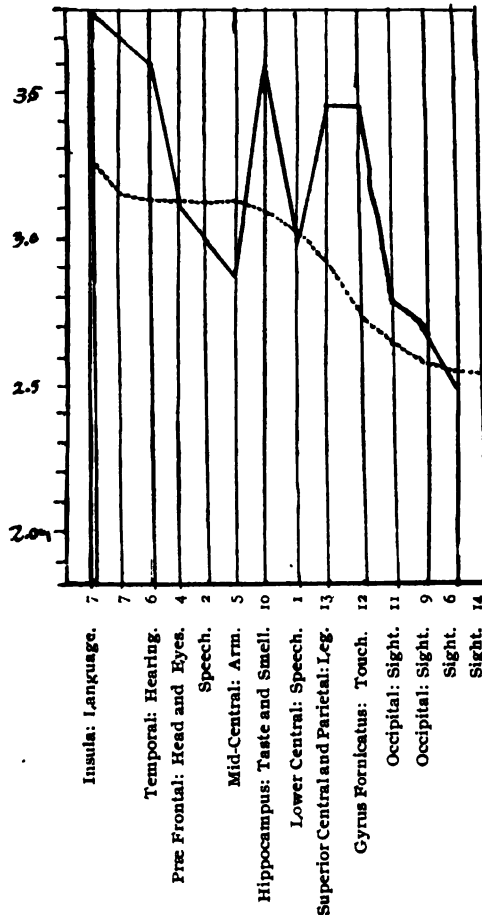
Limbic lobe,	average	3.45
Gyrus fornicatus	anteriorly	3.23
average 3.30	middle	3.32
	isthmus	3.36
Hippocampus		3.60
Temporal lobe (superior part)	average	3.30
posterior part first temporal		3.53
tip of temporal		4.80
Central convolutions	average	3.10
upper third		3.40 to 3.45
middle		2.85 to 2.80
lower		2.96 to 2.60
Occipital lobe	average	2.62
	convexity	2.75
	cuneus	2.40
	tip	1.50
	angular gyrus	2.65
Parietal lobe	average	2.60
	superior lobule	2.60
	inferior lobule	2.60
Prae-frontal lobe	average	2.45
(The measurements were well forward).		
Broca's convolution		3.00
sub-frontal		2.70
mid-frontal		2.30

In the order of thickness of gray matter, the lobes stand as follows :

1. Insula	language centre	3.80
2. Hippocampus	smell and taste	3.60
3. Temporal	hearing and verbal memory	3.30
4. Central convolutions	sensory-motor	3.10
5. Occipital lobe	vision and visual memories	2.62
6. Parietal lobe	co-ordination and dermal sense	2.60
7. Praefrontal lobe	attention, volition and higher intellectual powers	2.45

CHART SHOWING THE RELATION OF THE THICKNESS OF
CORTEX IN INDIAN BRAIN TO THAT IN
NORMAL BRAIN.

Dotted line = normal.
Heavy line = Indian.



I append a chart which indicates the relative thickness of the different areas as compared with each other and with those of normal brains.

The normal line is that determined by Donaldson. There may be some errors due to my not understanding exactly where Dr. Donaldson places all his speech cen-

tres. I have conformed the chart to the hypothesis that the cutaneous sensations have their representation in the gyrus fornicatus, a theory which I believe to be incorrect.

The sharp changes in any curve are due to the fact that the measurements of the lower central convolutions were small, while those of the gyrus fornicatus and hippocampus were large. As regards the temporal and occipital lobes, our measurements relatively are not widely apart.

In conclusion, I cannot say that there is any single anomaly in this brain which may be considered peculiar, or which positively stamps it as of special type. Still I would emphasize the facts of the relatively large occipital lobe, the hind brain, the small frontal lobe and cerebellum, the transverse fissuration, the wide angle made by the Rolandic fissures, the numerous short clefts, the long, confluent first temporal, the confluence of the parieto-occipital and temporal, the short opercula and consequent exposed Island of Reil. The corpus callosum, considering the size of the brain, is relatively small. The limbric lobe, the temporal lobe and the motor area are liberally developed. The distribution of gray matter shows a rich endowment of the senses of taste, smell and hearing, but a poor supply for visual, and intellectual language centers.

One concludes that the brain was a better motor and sensory than thinking and talking organ, that the organs of taste and smell were large, and that visualization and the intellectual powers were small.

REPORT OF A CASE OF SPINAL ARTHROPATHY,
IN WHICH MANY OF THE SYMPTOMS OF
SERIOUS LESION OF THE CORD ARE AB-
SENT.

BY WILLIAM J. TAYLOR, M.D.,

Professor of Orthopædic Surgery in the Philadelphia Polyclinic; Surgeon to St. Agnes
Hospital; Assistant Surgeon to the Orthopædic Hospital and Infirmary for
Nervous Diseases.

THIS case, lately under my care at the Philadelphia Orthopædic Hospital and Infirmary for Nervous Diseases, is of special interest, not only because spinal arthropathies are rare and our opportunity of observing them few, but because many of the more common symptoms of serious lesion of the spinal cord are absent.

The patient came to the hospital with the request that the knee joint be opened, the fluid which it contained evacuated, and asked that we operate at once.

Of the many physicians consulted by him, all pronounced the condition chronic synovitis of the joint, and advised operation interference as the only means of relief.

Albert D. F., age 41, married and paper-hanger by trade, was first seen by me on August 15, 1893.

His family history is excellent.

He had the ordinary diseases of childhood, from which he recovered without incident.

When twenty-four years of age, he had inflammation of the lungs and later on, in the same year, an attack of erysipelas. In 1876, he suffered from an attack of inflammatory rheumatism.

All of the larger joints were implicated and he was confined to his bed for six weeks, but ultimately made a complete recovery. It is from this we must date the commencement of his present disability.

The following winter, or just sixteen years ago, he began to have pains in his limbs which he attributed to

¹ Read before the Philadelphia Neurological Society, Oct. 23, 1893.

"sciatica." These pains were similar in character to those from which he now suffers and have continued at intervals ever since. He states that no two attacks are alike in location, at one time the pain is in the toe or heel, at another in the calf of the leg, but most often in the anterior muscles of the thigh.

If he grasps the part suddenly at or above the seat of the pain, it will disappear in a few seconds. It will often re-appear in a few moments, but will invariably cease if the part is again grasped firmly with the hand.

These attacks of pain have continued with gradually increasing severity, until now they are well marked "lightening pains," and are always worse at night. There have been two attacks of localized oedema of the right leg, extending from the ankle to above the knee. The first five years, and the second two years ago. In each instance the swelling disappeared in a week's time, leaving the limb apparently in a normal condition.

The circulation in both limbs has been poor for the past five years, the feet and legs being cold both summer and winter.

He has always been of a nervous disposition and easily excited. He denies all venereal disease, and there is no evidence whatever to lead us to doubt his truthfulness.

He is a steady smoker of tobacco, but consumes only about four cigars a day. He smokes very slowly and these last him a much longer time than the average smoker. He uses a small amount of alcohol, but is not a drinking man.

In 1881, he had a small sore spot on the base of the right great toe caused by a nail in the sole of the shoe. This ulcer would not heal, and after it had troubled him for three months he consulted a physician who cauterized it with nitrate of silver. The ulcer then healed, but he states it had not been closed more than twenty-four hours when it became very painful. He then opened the wound with a knife and let out a quantity of fluid.

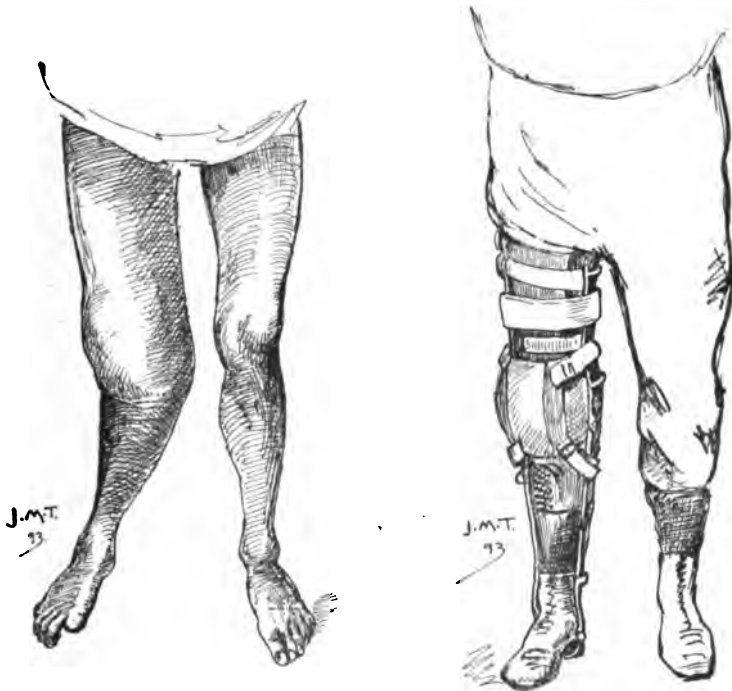
This state of affairs continued for about three years and gave him so much annoyance the toe was amputated at the metatarso-phalangeal articulation.

The stump healed readily without further trouble.

His present condition began eighteen weeks before his admission into the hospital. He had been working hard for eight hours in a damp place and in a cramped position which brought great strain upon the right knee

joints. He states that during that day the knee felt heavy but gave him no pain, and had not pained him before this. At the close of the day he walked two miles to his home in a heavy rain storm and was wet through to the skin.

During this walk the knee began to pain and rapidly increased in severity until he thought he would never be able to reach home. The next morning the knee joint was much swollen, but gave him very little pain. From that day until now the joint has remained swollen and



enlarged, but has given him no pain whatever. The only sensation being one of weakness.

During the first twelve weeks, the relaxation of the joint increased, especially the ligaments on the outer side, producing a condition of outward bowing, but since this time the inner ligaments have given way and the joint is now markedly knock-kneed. Examination of the knee showed it to be much enlarged, the joint full of fluid which floats the patella.

The lateral ligaments are greatly relaxed and permit

of a range of outward and inward movement of nine inches. The knee is so relaxed that he cannot stand upon the leg and can only take a step with the aid of crutches. There is erosion of the head of the tibia and a separation of the epiphysis. There is marked crepitation when the bones are brought in contact, but there is no pain whatever.

There is a difference in circumference of the two knee joints of three and one-fourth inches.

His eyes were carefully examined by Dr. Thomson, and again three months later by Dr. de Schweinitz and Dr. Thomson, who made the following report:

"There is no ptosis, no strabismus and no myosis. The pupils are unequal and show the Argyll-Robinson sign, the dilated form, reacting readily to accommodation but not to light. The media is clear, the fundus is normal in O.D., and shows slight choroiditis in O.S. Both discs show the early stage of grey degeneration.

"Form fields are normal; the red and green fields contracted, the green proportionally more than the red. There has been no apparent change within three months, since the first examination."

All the other special senses are normal.

The station is good. There is no inco-ordination and no loss of power.

K. I., M. I. and E. I. normal.

Dynamometer, right 150, left 140; he is right handed.

Sensation appears to be normal, or possibly there is some retardation to pain and temperature sense in lower extremities, but this is not marked.

No loss of control over bladder or rectum.

The heart and lungs are healthy and the liver and splenic dulness normal.

Digestion is well performed.

He is of spare build, but states he has lost weight during the past eighteen weeks.

He states he has never noticed any change in his sexual appetite or power, neither an increase or diminution.

I believe conservative methods of treatment in these arthropathies of spinal origin should always be preferred.

A number of cases have been operated upon by different surgeons, and attempts at resection of the joint have nearly always resulted in failure.

The trophic changes which permit of the destruction of the articulation act also in preventing union of the wound surfaces.

Some years ago it was my misfortune to have under my care a slight wound of the sole of the foot in an ataxic. The wound itself was slight and simply through the skin, but my patient nearly lost his life, and recovered only after many weeks of great suffering.

Here the destruction of the joint is so great, the separation of the epiphysis of the tibia, the enormous enlargement of the serous surfaces and the dislocation backward of the tibia upon the femur so marked that I do not think it would be possible, disregarding the trophic cause, to expect anything other than failure.

An amputation in the upper one-third of the thigh might possibly result in union of the stump, but this I doubt.

He was kept in bed for some time at complete rest; and with the rest the swelling of the knee diminished somewhat. He was suspended daily an increasing number of minutes with the happiest results in relieving the pains. Potassium iodide was given internally for a time.

In the hopes of relieving pressure and jar to the knee as well as support to the relaxed joint, I had made for him a brace. This brace consisted of two stout bars of steel extending from the upper portion of the thighs to the sole of the foot, with joints at the ankle and knee, with several semi-circular bands of steel for strength. This was attached to a shoe by the ordinary stirrup.

At the knee is a lock to keep the leg extended and yet permit of bending the knee when he is sitting down.

The portion which surrounds the thigh is made to resemble somewhat the socket in an artificial leg for a thigh amputation. This completely encircles the thigh, is strapped tightly to it, and thus relieves pressure upon the knee joint by supporting the weight of the trunk.

A broad band of webbing is strapped over the swollen joint to give it fixation and pressure. The accompany-

ing photograph gives a much better idea of this apparatus than my description of it.

Of course, no claim is made that this will in any way cure the condition, but it has been of the greatest service to him.

When he first came to the hospital, he was totally disabled, and could stand only with the aid of crutches.

Now, for nearly three months, he has been able to walk around with comfort and without the aid of a cane. He tells me he has been at work, has papered quite a number of houses, and although the stiff knee makes it awkward for him at times he has no pain.

Of course, he cannot walk as far or for as long a time as before the knee joint was affected, but he is able to stand and walk with ease and comparatively little discomfort.

For the very careful notes of this case, I am indebted to Dr. Walker, the resident surgeon at the hospital, and for the photographs to Dr. Boyce, also of the house staff.

These latter show most accurately the appearance of the enormously enlarged knee joints with the relaxation of the ligaments and the brace when applied to the limb.

An Addition to the Etiology of Degenerative Changes in the Cord.—Dr. Fr. Tuczek, in the *Prager Medicinische Wochenschrift*, gives an interesting account of some recent investigations of his, to determine the personal relation between ergotism and dementia paralytica. One fact brought to notice was the association of pellagra in patients who were suffering from nervous symptoms induced by ergot. Histological examination of the nervous system in cases where death had ensued, with pellagra present, revealed marked degenerative changes in the spinal cord, especially in the posterior and lateral columns. The author believed that his studies were sufficiently confirmative to make the statement that the poison from the deceased grain acted in such a manner upon the nervous system, as to produce degenerative changes in the spinal cord, and that an important addition was thereby made to the etiology of cord disease.

B. M.

THE INFLUENCE OF THE ATTENDING PHYSICIAN IN LITIGATION CASES.¹

By MATTHEW D. FIELD, M.D.,

New York.

THERE is, I believe, no class of cases in which the influence of the attending physician is more marked than in those involving litigation. Especially is this the case as regards traumatic neuroses and traumatic psychoses; I might almost say litigation neuroses and litigation psychoses. It is certainly remarkable that toward patients who may have received injuries in such a manner as to make other individuals or corporations responsible for damages resulting from the injury, the attitude of the physician should differ from that which he assumes in other cases, but, unfortunately, this occasionally occurs. A physician, called after an injury, where the accident has been attended with special shock and fright, may proceed to establish order in the household, to reassure the patient and friends, allay fears, and, as we might say, "pour oil upon the troubled waters." Or he may call with an air of bustle and great importance, go into all the details of the accident, dilate upon the gross negligence that caused the accident, go over the terrible effects of shock and fright upon the nervous system, suggest what terrible nervous diseases may result, detail the symptoms that may be watched for, discuss the legal liability, talk over what damages should be and the means of recovering them, the delays and trials of litigation, the inconvenience of the appearance in court and the terrible ordeal of cross-examination. Perhaps he may go so far as to suggest the proper attorney to be employed, or what is more likely, make the statement that he himself

¹ Read before the New York State Association of Railway Surgeons, November 15, 1893.

can adjust the matter to better advantage than any attorney, all of this in the presence of the patient and his friends, thus thoroughly exciting and perhaps injuring the sufferer. It is not uncommon that a railway surgeon, when called to examine a claimant in order to ascertain the extent of the injury, finds the attending physician insisting upon discussing the liability of the company for the accident, recounting all its horrors, past, present and to come, instead of proceeding in a quiet and orderly manner to the physical examination for which the surgeon has been called. The tremendous influence of suggestion is thus brought to bear upon the patient from the outset, and is often continued; certain symptoms are daily sought for and freely discussed till the patient, if he or she is at all susceptible, develops the thus suggested phenomena. There can be little doubt that both neuroses and psychoses are often greatly exaggerated and prolonged, if not wholly developed, by this line of treatment. This is very apt to occur in the neurotic and broken down, especially in the overworked, underfed, and poorly class shop-girl. These individuals actually suffer much more from shock and fright than the average, and are exceedingly susceptible to suggestion. Upon a certain class of physicians the legal aspect of these cases seems to exercise a peculiar fascination, this, rather than the medical question involved, arousing their deepest interest. By this, the sufferer is deprived of the services of both lawyer and physician. Now, this very element of susceptibility which wrongly, or carelessly, worked upon, constitutes so baneful a factor in many litigation cases, on the other hand frequently affords a most valuable aid to successful medical treatment. Quite recently a prominent neurologist, after having made a number of examinations with me, remarked that in not a single case did there seem to have been any systematic or scientific treatment employed. Since then, the gentleman referred to has been studying these cases, and there is hope that he may soon present us with an article on this subject. It is, on the other hand, by no means

infrequent for us to meet with cases where the attending physician has insisted upon quiet and order, and where the patient is prevented from discussing the legal aspects of the case, if such exist, until he is physically able to do so.

It is an observed fact that in many disputed cases where the patients have been nervous invalids for months, even years, they recover rapidly upon the termination of litigation. It is not my belief that these are necessarily cases of fraud or simulation, but that they are rather caused and kept up by the suggestion of others, including friends, relatives, lawyers, and doctors, and that often the physician contributes more to this result than any other factor. We condemn the lawyer and are wont to hold him responsible, but in my opinion it is more frequently the physician who is to blame. Litigation having terminated, the physician's services are dispensed with almost as promptly as those of the lawyer and with equally good effect. I am sure that many physicians do not sufficiently appreciate the injury they may do in this respect, and all are not sufficiently familiar with cases of the kind or with the powerful effect of suggestion upon them.

It is very rare to meet a physician who is aiding a fraudulent claim. Not so rare, but still uncommon, is it to meet a physician who, by his continual attendance and treatment, encourages a fictitious injury. However, many persons are natural partisans, and this affects doctors as well as others. Most physicians, I have found frank, straightforward and refusing to countenance the slightest appearance of simulation or fraud; resenting any attempt of the kind upon the part of the patient as a reflection upon their honor and professional attainments. But some physicians seem at least very credulous, as we perhaps seem suspicious and unbelieving. Not long since, I was invited to examine a woman who had been injured by the premature starting of a train, where the attending physician informed me that he saw the patient about fifteen minutes after the accident. that she was

suffering from profound shock, that her pulse was 120, and axillary temperature 105.5°, and that a digital examination showed her uterus to be decidedly congested. Another doctor found his patient suffering from spinal concussion about three hours after an accident, but recovery from most of the symptoms had occurred by the following morning. This last patient developed some most remarkable phenomena, one of them being double monocular diplopia. In this case I was forced to believe that if the attending physician had been a better neurologist, the patient's symptoms would have approximated more closely to those of some known nervous disease.

After listening to the testimony of a physician, on one occasion, a medical friend remarked, "He does not perjure himself half as often as he would if he knew more." Fortunately, such disgraces to our profession are but rarely met with; they are the prominent exceptions in many years experience.

It is not my object, in this paper, to criticize members of my own chosen profession or to cast any reflection upon them. While it is true, that fourteen years of practice, largely dealing with medico-legal subjects, has dispelled much of the poetry and romance that once accompanied my professional aspirations, nevertheless my profound respect and love for my chosen occupation and for my brethren in its ranks have not been lessened.

It is my object to direct your attention and that of our profession in general, to the necessity of the peculiarly cautious management of litigation cases, especially those manifesting the symptoms of traumatic or litigation neuroses and psychoses, and to the manner and ease with which these conditions can be developed and maintained. I will again barely suggest that the same factors that contribute to their development and maintenance may be used most successfully for their alleviation and cure; but this part of the subject I leave to abler pens than my own.

A CASE OF MULTIPLE NEURITIS, SIMULATING
LANDRY'S PARALYSIS IN THE RAPIDITY,
ORDER AND EXTENT OF PARALYSIS.¹

By F. SAVARY PEARCE, M. D.,

Philadelphia.

THROUGH the invitation of Dr. J. Madison Taylor, and by the kindness of Dr. S. Weir Mitchell, I report the following case. The simulation of the multiple neuritis in this man to the so called paralysis ascendens acuta (a disease rare and whose course and clinical features are not described alike by many authors) was a somewhat confusing element in the differential diagnosis, (if, indeed, any exist) at the time of admission of the patient to the Infirmary for Nervous Diseases on April 3d, 1893.

A. B., male, æt. 59 years. In the family history it is noted the relations were as a rule healthy and long lived. Two brothers had died in infancy, one as the result of an accident. A third brother succumbed to some bowel trouble at 27 years of age. Five sisters are all healthy at middle life. Father had died of old age; mother of apoplexy, æt. 68. No other neuroses or psychoses and no alcoholism.

The patient was always a healthy boy, had the ordinary diseases of childhood in mild forms. Boasted of his strength as a young man. Has never married and denies alcoholism or venereal disease. Thirteen years ago had inflammation of bowels.

Was wounded during service in the Civil War near outer malleolus of right leg and foot by a "spent ball," which was removed at the time, but the ankle bones were so crushed as to lay him up practically for two years. There was apparently no neuritis following the injury, but he has been lame ever since. Has never been able to do much manual labor since, and has not done any work for the past eight years. This excludes toxication (from the occupations' usual sources of poisoning) at

¹ Read by request to the Philadelphia Neurological Society, December 26th, 1893.

least in the ætiology of the present trouble, which dates back seven weeks previous to admission to the hospital. The patient had been in good health and walking about up to February 16th, 1893. The next day he complained some of nausea, of "belching of wind," but no vomiting and no diarrhœa. Had a sense of malaise; later in the day felt weak in his legs and on waking February 18th, it was noticed he had some difficulty in articulation. His tongue felt thick. The legs, hands and arms had now become feeble. Patient walked about the house some, but later in the day the nausea recurring, a physician was summoned who pronounced the trouble "acute indigestion." The sister says he now had some fever. No flux or abdominal tenderness existed then, nor since. On arising Sunday, February 19th, (about 48 hours after the first attack of nausea) patient felt very weak. Said his knees felt as though they would give way, and when he got down stairs fell from inability to bear up the body weight by his enfeebled extremities. On attempting to walk again he fell a second time, after which he was assisted to the breakfast table where he ate a hearty meal, but by noon he became extremely weak all over his body, so much so that he could not feed himself and was carried to his room that night having considerably fever. There was no acute pain at any time and it did not cause pain to be lifted.

There seems to have been no tenderness along the nerve trunks even from the first. He now remained in bed, the helplessness increasing rapidly in the inability to move legs, then arms and trunk, (although the power of articulation soon returned) until at the end of about 36 hours from the onset of this fulminating course of the paralysis he became almost completely diplegic. The fever gradually subsided, and his bowels moved normally and regularly as they had not done previous to present trouble.

He remained in this helpless condition and three weeks later fell from a chair he had been lifted into, (this was four weeks before admission to hospital) bruising the dorsi of both feet, it was thought. At any rate symmetrical greenish ecchymoses are found here at the first examination. There is also slight œdema of feet. He has no trouble with the kidneys, bladder or bowels, before or since the paralysis.

There has been no loss of sensation and there are no evidences of trophic change any place on the body.

Patient has had erections normally up to within a week of admission. The voice has gradually returned to normal, the only difficulty now being slight dypnoea and a tickling sensation in the throat causing hacking and expectoration of small amounts of mucus.

On admission too, the lungs are clear, (respiratory sounds faint) the temperature is 101° . Pulse, rapid and weak. No cardiac murmur. Is of fairly good physique. Liver and spleen of normal size and not tender in palpitation. The man's teeth are bad. No blue line. The bowels continue regular. There is slight tympanitis from abdominal paresis. Tongue clean. Appetite fairly good. Hearing good. Very soon the slight nervous cough lessened, and while he had no subjective pain, yet he bore an anxious expression, as one suffering from some very acute disease. He is entirely helpless. There is no face or tongue palsy, however, and the latter is protruded straight. Takes semi-liquids readily as fed by the nurse and there is no regurgitation. Can shrug his shoulders slightly. Can move toes and fingers a very little. Can flex knees slightly when supported on the bed. Makes slight quivering movement of abductors of thighs, not so of adductors. The muscles of the thighs, legs and arms, are "mushy" to the touch. The right thigh and leg are somewhat less in size than the left, due to old injury to foot and leg. The great toe of right foot is in position of hallux valgus, also probably induced by the gun shot wound of foot.

The sensation in both lower and upper extremities is unaltered as to touch, temperature or pain, excepting of a slightly tender point on deep pressure in the left popliteal space; none along other nerve trunks. There is some muscular soreness in the palms of hands and soles of feet, rather than a true hyperaesthesia. The joints of fingers on both hands are sore on pressure, not to light touch. Not so in the toes. Tells pin prick any place readily. Tells point from head and there is no delay. Knee jerk is absent and not reinforcible by making a grimace, the only voluntary movement of any movement remaining. Plantar, cremasteric and abdominal reflexes nil. Dynamometer, r. o., l. o. Jaw jerk is good, being the only reflex not affected, excepting the others of the head. The muscles react very slightly to blow of percussion hammer, especially so in flexors of forearms. After blow, muscles maintain a tetanic contraction, remaining "hard" a few seconds to half a

minute. This is seen even in as small muscles of the hands as the first dorsal interossei, and more on right than on left side. The pectorals hump in like manner. Sphincters are normal. He sweats a great deal and the hands have "sour bread" smell, yet have been washed frequently.

The man's breathing is curious. There is little, if any movement of abdominal muscles or viscera. The respirations are feeble, hurried and seem to be costo-diaphragmatic in type, the latter muscle not working satisfactorily, but producing jerky breathing.

Electrical examination by Dr. I. P. Willitts, was reported as follows, April 7th, four days after admission:

Faradic.—Two and a half inch coil, secondary; produces contraction in extensors both legs, most marked in tibialis anticus; same in arm extensors, flexors same.

Galvanic.—Five m. a. gives An Cl C = K Cl C in extensors of left leg; Seven m. a. gives K Cl C > An Cl C in extensors right leg. This shows marked quantitative change in all muscles affected with possible De R. commencing in left leg. This in seven and a half weeks.

Dr. De Schwainitz examined the eyes and reports, "with exception of slight oedema of nasal edges of optic discs, there are no changes in the fundi. Vessels and form fields normal. Pupils respond to light and accommodation, but the left is a little the larger."

Thus, four days after admission and after this study of the case, (the crisis apparently over) Dr. Mitchell ordered continuance of diet confined to milk and vegetables largely, quinine sulph. gr. xii daily. Bowels to be kept open, and in active therapeutics alternating hot and cold baths to arms and legs b. d. There was absolutely no disturbance of his digestion as we found up to a week after admission and his diet was increased accordingly. Urinalysis negative. At this time also the temperature ranged from 100° to 101°. The paralysis which had seemed about to affect the medulla so seriously had not progressed. Examination of the spleen still revealed no enlargement or tenderness. The greenish spots of ecchymosis persisted over most of the dorsi of feet. No pain on pressure along nerve trunks. The only subjective symptom is a sense of formication in the extremities much relieved by the hot and cold baths. Muscular reactions to-day, (April 10th):—chest = normal reactions and humping on tapping with percussion

hammer. Left arm: deltoid humping marked. Excessive humping in biceps both sides, the primary humping being feeblest. There is scarcely any reaction remaining in flexors of forearms. Both primary and secondary reactions very good in extensors of forearms, the humping continuing for a long time after the blow is struck. Also, he can shrug shoulders a little better. Can contract adductors of both thighs some but not enough to move limbs. The little gain in flexion and extension of fingers is less marked in left hand. Abductor muscles have gained some in power, but he can not move limbs out as he lies utterly helpless upon his back.

April 11th.—His temperature is 101°. Sleeps well, appetite good. The cough has ceased and lungs are clear. The plantar, knee, elbow, abdominal and cremasteric reflexes are still absent. There is faint fibrillary contraction on tapping anterior tibial groups and gastrocnemii both sides.

April 12th.—Patient had a good night's sleep. To-day the slight movement of fingers is better in right hand, the first dorsal interossei muscle being the most active muscle on either side. Tapping this muscle produces marked fibrillary contraction. He has also recovered the use of abductors of thighs sufficiently to move limbs out a little as he lies on back. Takes nourishment well as fed to him.

April 13th.—Only change noted was that the fibrillary contraction did not exist while longitudinal contraction could be elicited a little in the anterior tibials. Longitudinal contraction was pretty well marked on tapping the gastrocnemii; a persistent fibrillary quivering continuing for some time after. The reaction to stimuli of both recti is fairly good. There is a slight plantar response easily exhausted on left, none on right side. The next day the muscles of arms were in better tone, excepting those of forearms. The right plantar reflex has returned feebly but the left could not be elicited. This vacillation of plantar reflex activity has been very marked. K. J. is absent. No tendo-Achillis reflex. The patient weighs 130 lbs., not much below his usual weight.

April 15th.—Dr. Kyle made cultures from blood taken from extravasations on dorsi of both feet, but with staining and high power no micro-organisms could be found. Thus the cause of the paralysis, if due to bacteria, was beyond our reach. That some infectious process was

going on (possibly aptomaniac poisoning) seemed inevitable, a blood count showing, out of 4,000,000 r. b. c. to c. m., only about 3,000,000 healthy cells. The remainder of the red corpuscles were irregular in form, crenated and many contained granular matter. Hæmoglobin estimate on admission being 68%, now was reduced to 50%. The white corpuscles were slightly increased. Surely all these were evidences of a profound dyscrasiac!

By the 18th of April, fibrillary twitching was everywhere lessened, and on the 20th, even more so, when too, the left plantar reflex had again reappeared. Measurements show right leg to be the smaller one, due to old injury stated, and not to unilateral acute wasting. But little difference existed in the thigh.

Massage and faradism was begun on the 23d of April, (10 weeks after beginning trouble) producing soothing and agreeable effect. He had no subjective pain. On the 19th an electrical examination had proved well marked reaction of degeneration existing in both legs, worse on right.

Galvanism: Left leg extensors, 6 m. a. An Cl C > K Cl C.

Galvanism: Right leg extensors, 8 m. a. An Cl C > K Cl C.

April 27th.—Sensation to heat, cold and touch perfect. Freezing part by ice and rhigolene had no effect on reflexes. The K. J. and elbow jerk remaining absent, the jaw jerk was well marked. On the first of May it was noted:—the right leg moves slightly more, and the right plantar reflex is increased in force. He breathes more by diaphragm, respirations less jerky, and liver now rises and falls with respiratory movements.

The same measurements of lower extremities obtained on May 8th as had been recorded April 20th, 1893.

May 20th.—All fibrillary contraction has disappeared. Cremasteric reflex has returned slightly.

Thinking of possible poison from arsenic in wall paper or from other source, a specimen of the man's urine was sent to Dr. John Marshall, at the University, who reported negatively. By the first of June the extension of paralysis was stayed, and he has made very slow improvement since as regards motion. He can now flex and extend right leg, adduct well, abduct slightly. The left leg can be adducted to lift foot 12 inches from bed, the patient being held on left side. Sensation seems perfect. If placed on right side can turn on to back.

Can shrug shoulders well. Can pronate, adduct and but slightly extend arm at elbow on both sides. Perfect control over bladder and bowels. Temp. 100°.

June 17th. — The note was made: No subjective pain anywhere. None on pressure over nerve trunks. No bad sores. Can adduct, abduct, supinate and pronate arm by shoulder muscles. Holds pencil in fingers for first time. Elbow jerks absent. Arm muscles respond faintly, left side best. Plantar reflex improved. The muscle jerks in legs are better on the right than on left side.

July 31st. — Faradic current gives no response in extensors both forearms. Three inch coil contracts extensors both legs.

Galvanic current: An Cl C > K Cl C in both forearm extensors = De R. present. This shows gain below and loss in upper extremities.

August 18th. — Slow gain. Diaphragm used more. Sensation to touch, temperature and pain normal. All motions improved. Joints of fingers are stiff from disuse. No K. J. or elbow jerk. Attempt at clonus in right foot. Leg muscle jerks good. Cremasteric and plantar reflexes normal. Temperature at night 100°, pulse 93° to 95°. By September 10th there was no decided change. The movements were slightly improved. Was now put on strychnia gr 1.40 t. d.

October 25th. — Sensation good. Motion much improved in hands and arms. Can touch nose with hand for the first time. No elbow or muscle jerks in arms. No K. J. or clonus. Plantar and cremasteric reflexes present. Muscle jerks in legs present. Can roll over on side in bed. Chest expands better in breathing. Controls bladder and bowels perfectly. Has erections normally.

November 1st. — Electrical examination by Dr. Willets:

Faradism. — Lost in all extensors forearms and legs, and in triceps.

Galvanism. — 12 m. a. is necessary and gives An Cl C > K Cl C. in all the affected muscles. De R. present.

November 14th. — Patient's expression duller. Temp. 101°. Put on Ext. Thyroid gr. x. t. d., on empty stomach.

November 20th. — No change except that the temperature which has been running up to 99° and 100° has not been above 99°, and pulse is slightly more rapid. Reflexes same as last note. Can move all parts better.

November 23d.—Some dizziness when turning in bed. None when up on chair. Temperature not above 99° since taking thyroid. Pulse more rapid (increased from 110 to 120). Has same trophic change about great toe nail of left foot. No bad sores. Blood count is over 5,000,000 red blood cells, 75% hæmoglobin.

Status Præsens. — December 26th.—Patient was too helpless to be brought before you to-night. All muscles of upper and lower extremities are wasted and flabby. Interossei muscles, both hands, are very much wasted, making the hands passively claw-like. Can slightly flex, extend, adduct and abduct fingers, both hands, but the movements are clumsy. Complete wrist drop, both sides and on supinating forearms for him, he can not flex wrist, which can be done slightly, however, when not so impeded by gravity. Can put hands on head by action of shoulder muscles mainly, the forearms being flail-like. Muscles respond feebly to stimuli. Chest muscles are also flabby and pectorials act feebly. Jaw jerk, good response. K. J. and elbow jerk absent. Cremasteric and abdominal reflexes faint.

Can raise both legs high off bed; but the effort soon tires him, and the members drop flail-like on the mattress. Can adduct and abduct fairly well. Can flex and extend ankle and toes slightly. There is the characteristic ankle drop.

No tenderness along nerve trunks. No bad sores. The nails of first and third toes of left foot are now undergoing trophic change. All functions and emunctories fairly normal. Bowels moved daily. Urine also voided normally. Heart's action is weak. Chest expansion is poor.

To sum up—There first appeared nausea, difficulty of speech and of respirations. Then there was general weakness; finally sweeping like a cyclone the whole voluntary motor system below the head, beginning in lower extremities, extending rapidly to trunk and arms. These were preceded by malaise, fever, formications, but accompanied by no pain or tenderness along nerve trunks. All this took place too, within two or three days at least, placing a man in full vigor apparently, upon his back in utter helplessness, and from the history what would appear to have been grave bullar disturbance, the latter soon disappearing, although the vagi were weakened in their control over diaphragm, and the external respiratory nerves lost power over the serrati for weeks after the crisis was over. The adductors of thighs were more and sooner affected than the abduc-

tors, especially noted at end of first week after admission. The extensors or anterior tibial group were affected before (and more profoundly ever since) than were the posterior muscles of the legs. The extensors of forearms wasted before the flexors.

All these, with the rapid loss of reflexes, no early trophic changes, no history of alcoholism or other exciting cause, were a group of symptoms much resembling those of acute ascending spinal paralysis, so called. The age of the patient, the electrical inaction of the muscles; more in legs at first, then in arms, and, in July, '93, the gain (since April) in electrical response, of lower extremity muscles (even from the apparent degeneration of anterior tibial muscle of left leg) over those of the upper members, where degeneration had then taken place; and finally, the degeneration found in November, '93, of all affected nerve supply, (confirming the order of paralysis given above) are of course, *prima facie* evidence of the neuritis from the first and now existing.

Prognosis is unfavorable.—The increase in control and range of motion in degenerated states of nervus supplying the parts is always interesting, probably showing specialization of the remaining little or unaffected fibres.

Strumpell says,² "there is usually no rise of temperature in ascending spinal paralysis." He thinks the symptoms must be due chiefly to functional disturbance from some toxic influence, and further states that "the condition of the reflexes and the rapid loss of electrical excitability in connection with the pains at the beginning seem to justify the hypothesis that the disturbance sometimes has its chief seat in the peripheral motor nervus, the disease then exhibiting the most acute form of infectious multiple neuritis," and finishes the pathogenesis as follows: "In other cases, however, the motor portions of the spinal cord, the lateral columns and the anterior gray cornua are, perhaps, chiefly affected." If there is recovery it is usually in a few weeks. Wood says,³ "weakness, irregular formications, spots of numbness, weariness and discomfort," etc., are the prodromata of Landry's Paralysis. That paralysis begins in foot muscles, then legs, thighs, arms and in muscles of respiration. That the temperature is rarely above normal, and there is no pain (only discomfort, formications or slight numbness). No trophic changes. Sometimes marked anæ-

² A Text Book of Medicine, p. 637.

³ Nervous Diseases and Their Diagnosis, p. 51.

thesia. Usually none. "Edema of skin" and marked sweating (as in this man) exist in some cases.

In Ross's thorough work⁴ published this year in connection, Bury, most of the reported cases of Landry's paralysis are tabulated. He records 93 cases, and throwing three out for another category, states, that of the 90 cases remaining, 62 were in males, 23 in females; in the remainder, sex not being mentioned. That the majority of cases have occurred between the ages of 20 and 40 years, "but that persons have been attacked as early as three and as late as 67 years of age." He makes three stages, (a) invasion, (b) paralysis, (c) convalescence, and says there is, as a rule, no fever. Fifty-three cases in Ross's table are due to causes such as operate in ætiology of peripheral neuritis, viz.: diphtheria, septicaemia, alcoholism, syphilis, malaria, infectious fevers, metallic poisons, etc. In 37 the causes were uncertain.

In 47 cases out of the 90, no mention is made of paresis of muscles supplied by bullar nerves.

In 15 out of this 47, it is merely mentioned generally that the paralysis pursued an ascending course, or that the extremities were feeble. In 20, it is stated the lower extremities were first or most profoundly affected than the upper extremities. In ten cases, the lower and upper extremities appear to have been attacked simultaneously. In one case, the lower extremities were alone affected, and in another, the upper extremities were attacked before the lower; 52 died, all in stage of paralysis, 38 made partial or complete recovery.

Morbid anatomy.—38 of the 52 cases were examined post-mortem, as were three cases dying of intercurrent attacks of acute disease in stage of convalescence, and one that died of abdominal cancer; making in all 42 autopsies. The case of Bauchet and the two cases of Schultze are the three out of the 93 tabulated cases Ross does not include as ascending paralysis *per se*. in deference to Schultze where cases lasted six months and seven months respectively before death took place, and who prefers the name in such cases of "ascending atrophic paralysis." As no autopsy was made in the cases the true pathology was not found.

Ross says, "To sum up, the medulla and spinal cord were subjected to microscopical examination in 26 out of 42 cases in which an autopsy was obtained; in 14 of these cases both were found completely normal; in four

⁴ On Peripheral Neuritis, A Treatise, p. 91.

more the lesions were situated in the medulla oblongata and cleival region—a localization which affords no explanation of the symptoms—and in the eight cases remaining, the changes described were so slight in degree that they can not be taken as evidence of myelitis. Some of the nerve-roots or peripheral nerves were examined in nine only of the 42 cases, and in three of them were found normal; while in the remaining six cases degenerated nerve fibres and other evidences of neuritis were observed. The balance, therefore, of the evidence afforded by morbid anatomy is largely in favor of the view that the essential lesion is to be found in disease of the peripheral nerves and nerve roots, rather than in the nerve centres."

In this case then—No metals, organic or other poison being found leaves us in ignorance of the subtle agent that must be the actiological factor.

The alterations found in the blood too, were the result of the same cause. It must have been aptomaniac or toxine, and when the rapid advances in bacteriology reach the stage of isolating these toxic substances, we may hope too, for cure by the administration of anti-toxines.

There being but five cases of Landry's Paralysis recorded in patients over 60 years, the explanation may be from the fact that tissue resistance is greater in the system that has become more or less immune to infectious processes through its having combatted many; whereas in the young the severe symptoms are less resisted for the contrary reason and the patient succumbs.

May not the pathological process in the quickly fatal cases be the incipency of organic change which the accurate microscopic "technique" is yet too crude to detect?

And may not this case of neuritis, running much the same course as Landry's Paralysis at first, be one tided over; the beginning organic change then having an opportunity to already continue.

Since the above report was made an abstract of a paper (by Kirilzew and Mamurovsky read at the "Jubilee" *Nervenheil und Psychologie* in November, 1890.) was seen in the *Journal of Mental and Nervous Diseases*, 1891, xviii: 154. The paper was on "A Case of Landry's Paralysis with Autopsy." Patient was a locksmith, twelve days ill, died with well marked symptoms of Landry's Paralysis. Acute parenchymatous neuritis was found in nervus of feet, legs, forearms; to a slight extent the roots of cleival and lumbar enlargements of spinal cord. Cord—hyperemia of gray cloudiness and atrophy anterior ganglion cells and accumulation of cells in and about central canal. Most marked evidences of inflammation were in the peripheral nervus.

A CASE OF SYRINGOMYELIA.¹

By F. X. DERCUM, M.D.,

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IN view of the interest attaching to syringomyelia, and especially in reference to its pathology, the following case may not be void of interest.

D. A., male, white, aged 62 years, had formerly been a clerk; married, native of Connecticut. Was admitted to the Infirmary for Nervous Diseases, April 16, 1892. Service of Dr. S. Weir Mitchell.

The family history revealed that the father had died of phthisis, but his mother and other relatives had enjoyed very good health.

The personal history was practically negative up to thirty-seven years of age, when he states he was attacked very suddenly by extreme pain in the back, and his trunk and limbs became rigidly extended, his head being drawn back (opisthotonos). This condition, he says, continued for five weeks, and also that during the greater part of this time he was unconscious. It was impossible to obtain from him any more definite account of this illness. However, his convalescence from it was very tedious and for a long time afterward there was pain in the back, weakness in the legs and numbness of the hands. Later, recovery was apparently complete and he remained in good health for some five years, when he again noticed a numbness in the fourth and fifth fingers of both hands. This numbness began in the fingers of the right hand, but soon appeared in the left hand also. It increased somewhat in severity, but did not spread to the other fingers or other portions of the hand. It persisted, according to his statement, for some sixteen or seventeen years without further change. At this time, that is three or four years ago, he commenced to notice a sensation of "drawing or tightness of the tendons" in the arms. This steadily increased, and later on actual contraction of the arms made its appearance. Some

¹ Read at the meeting of the Philadelphia Neurological Society, December 26, 1893.

three years before this period he noticed a sensation as if the soles of the feet "were too much rounded." He says that he lost some of his certainty in walking. This steadily progressed until a marked staggering gait was attained. This continued until three years ago. The numbness also appeared in the feet and increased in degree, the condition being similar to that which already existed in the hands. His case had been slowly progressive, he thinks, and from bad to worse.

On his admission, the following notes of his condition were made by the resident, Dr. Pearse.

Present condition, April 16, 1892. Lies in bed with arms and legs much contracted. Examined for sensation, it is found that it is deficient in all the extremities. Voluntary motion is much impaired owing to the presence of the contractures. There is no ankle clonus, though the knee-jerks are exaggerated. Plantar reflex present. Pupils react well both to accommodation and light. Has lost control of both sphincters, bowels obstinately constipated. No apparent disease of spine, no pain elicited on pressure, or percussion. There is some pain in the hands. Character of this pain not made out very clearly.

Examined again, May 5, 26, 1892. Is able to move both legs and flex and extend them, but to a limited degree only. Has grown progressively weaker. K. J. appears to be normal on the right side, but is now absent on the left. Jaw-jerk not elicited. All of the muscle-jerks appear to be ++. There is a left-sided partial anæsthesia quite well defined in the middle line of the body. It is, however, most profound on the inner side of the left leg. It is now noted that he can distinguish heat from cold readily upon the right side of the body and upon the right leg, but on the right arm the power is evidently diminished. On the left side of the body and on the left arm and leg the thermal sense seems to be altogether lost.

June 15, 1892. Now, under the care of Dr. Dercum. The above notes as to the condition present corroborated. In addition, some wasting of both arms is noted, together with wasting in both legs, especially about the calves. Further, a bed-sore has made its appearance on each hip and in addition a very large one, five inches in diameter, over the sacrum. The knee-jerk is now absent on both sides. Tongue excessively coated. Patient is evidently in very bad condition; moans and groans almost con-

stantly, and especially at night. Upon being questioned he says that he suffers no pain, only a "general uneasiness." An examination of the urine reveals much pus and albumen, but no casts. A few days later the patient became delirious and sleepless, sedatives having little effect, and he finally died on June 28, 1892.

The autopsy was performed by Dr. C. W. Burr, Pathologist to the Hospital. It revealed among other changes of minor importance, a large cavity occupying the gray matter of the spinal cord. This cavity was most marked in the cervical region and to a less extent in the dorsal. It was absent in the lumbar region.

The microscopical appearances are as follows:

Microscopical examination of sections from the cervical region reveals extensive destruction of the grey matter and in addition sclerosis of both lateral tracts. The anterior cornua of the grey matter are to some extent preserved, though they seem to contain fewer cells than normally. Throughout the anterior cornua appear as though lopped off. The lateral processes if they exist at all are excessively distorted. Laterally and posteriorly the cavity encroaches much upon the general substance of the cord. Indeed, posteriorly the inroads have been so great that the posterior roots and root zones can with difficulty be defined. In some sections the posterior cornua seem largely to have disappeared. In the dorsal region, however, in which neighborhood the cavity is decided smaller, these parts are comparatively well preserved. In the dorsal region, also, the cavity is far more eccentric, being most marked toward the left side. In the lower dorsal and lumbar region the cavity is not detected. The walls of the cavity are exceedingly interesting, being made up of a richly nucleated, delicate connective tissue. That portion immediately lining the cavity is especially loose and delicate. Very soon, however, it becomes slightly more dense, but as we approach its periphery it again becomes more delicate and its fibres again separate more widely. In its peripheral portions are seen here and there numbers of nerve tubules. These, however, are absolutely wanting in the denser and more central portions. We are at once impressed with the difference which this connective tissue formation presents from that of ordinary sclerosis when we direct our attention to the sclerosed lateral tracts in the same sections. The latter tracts are replaced by connective tissue dense in character, presenting few or no

nuclei and differing strikingly in its physical appearance from the tissue just described. Further, the connective tissue formation lining the canal appears to pass from very fine gradations into the general substance of the cord. One is also impressed in examining these sections with the unusual vascularity of the cord in the immediate neighborhood of the cavity. The blood vessels are often numerous and large and sometimes quite tortuous. They do not, however, for the most part show any change in structure, though in a few instances they seem slightly thickened. Sections of the lumbar cord are of special interest as suggesting the possible sequence of the changes. As already stated, no cavity existed in the lumbar cord. Indeed, the central canal is entirely obliterated and in its place is found a rich deposit of nuclei, some within the lumen of the canal, but the bulk are aggregated about its periphery. Their arrangement, number and appearance closely suggest those found in the walls of the cavity of the dorsal and cervical regions. It is very probable, indeed, that we have here represented the beginning of a change which finds its completion in other portions of the cord.

Neuro-Trophic Disease.—A case is reported by Sir Dyce Duckworth, M. D., in the *British Journal of Dermatology* for December, 1893, in which the patient, three months after recovering from a severe attack of enteric fever came to him complaining of extreme sensitiveness over the region of the thighs and over the malleoli. Examination of the parts revealed several longitudinal stripes of linear atrophy and hyperæsthesia over the legs. Careful investigation disclosed no other evidence of nerve lesion. The occurrence of lineæ atrophicæ as a sequela of enteric fever had been previously reported, but it was certainly sufficiently rare to be made a note of in this instance. The atrophy together with the hyperæsthesia pointed the author's thought to the neuro-trophic nature of the lesion, and indicated that both trophic and sensory branches of nerves might thus give token of the damage wrought upon them by the special toxine of the fever. B. M.

A CASE PRESENTING HALLUCINATIONS OF SIGHT, TOUCH, TASTE AND SMELL.¹

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Instructor in Nervous Diseases, University of Pennsylvania; Assistant Neurologist to
University Hospital.

W. B. H., aged 64 years, married and a clerk by occupation, presented himself at the Clinic for Nervous Diseases of the University Hospital, on November 12, 1892, and gave the following history, viz.: Family history good as regards nervous troubles excepting that one granddaughter is subject to chorea. The patient has never been a nervous man and has always enjoyed good health with the exception of a severe attack of grippe in 1890. He does not use alcohol, but chews considerable tobacco. No history of venereal disease. The present illness began one year ago (in 1891), and was preceded by an epidemic of fleas in the court room where the patient had his office. Several days after the fleas had been exterminated, while writing at his desk, he felt as he thought something biting him upon the legs, this he attributed to the fleas, and feeling the same sensations while at home, he had the entire house cleaned, carpets removed, etc., in a vain effort to get rid of the supposed insects. After this had continued for three weeks, one day while writing at his desk he saw what appeared to be a large black spider drop down in front of him. He put it, as he thought, on a shovel and threw it into the fire, but it constantly reappeared, and he moved his office from one part of the building to another in a vain endeavor to get rid of it. During this time the biting, which he likens unto needles being stuck into him, continued. After this, in rapid succession all sorts of objects appeared to him; for instance, at nights he would see four snakes, one at each corner of the bed, those at the head would be black, at the foot cream colored, with heads like bull frogs. During the day he would see little elephants, standing on their heads, rats with bread in their mouths, etc.

In January, 1891, he was compelled to cease work. The following March he ceased seeing the elephants,

¹ Read before the Philadelphia Neurological Society, December 26, 1893, and patient exhibited.

etc., but they were succeeded by innumerable worm-like creatures, "as fine as a silk thread and of indefinite length, of different colors,—red, white, black, etc., some having human heads, others heads resembling that of a horse." These objects are continually crawling over him, getting into his food and crawling into his nose and ears; they have a "slimy taste and musty smell." At times he vomits his food on account of them. They continually bite him and he sees them get on other people. He is continually picking these objects off of him. In addition to this, the ground appears to be covered with smaller creatures, resembling small pieces of hay. The patient knows that these objects have no real existence and can reason why they could not possibly exist except to his own senses. Examination of the eyes showed slight opacities of the lens with retino-choroiditis. Urine was normal. Knee jerk is diminished, but it can be reinforced. The patient was only seen at the hospital three times, his last visit being December 23, 1892, from which time until a few days ago he has not been under my observation. The fact of these hallucinations being first apparently suggested by the visitation of fleas (an actual occurrence) which occurred just previous is, I think, of interest.

Examination¹ for sensory changes resulted as follows: Sense of touch well preserved. Painful sensations as the prick of a pin were felt as something hot, and when compared with a genuine hot object, were said to be the same sensation. Analgesia was present in a few scattered areas, especially on the arms. In a few places he claimed to feel two points as three. Temperature sense good. Testing his visual field for form and color, resulted as seen in Fig. I.; it is seen that the form field is contracted and with the exception of in a few points is inside the field for red. The blue field was not taken. The fields were taken by Dr. Jas. Wallace, chief of the Eye Clinic of the University Hospital, and were verified by several trials. While at the time of the patient's first visit, hysteria was hardly considered, as there was nothing in the man's behavior and appearance pointing that way, the subsequent history since I saw him one year ago, and which is detailed in the discussion, together with the sensory changes above noted, would seem to point towards this probably being a remarkable case of that disorder.

¹ This examination was made after exhibiting the case to the Society.

HYSTERECTOMY FOR PROCIDENTIA—REPORT OF A CASE.

By E. M. GREEN, M.D.

THIS case is of interest chiefly on account of the unpromising condition of the patient, and the mental and physical improvement following the removal of the uterus.

S. C.; 50 years old. The subject of chronic mania. She has been an inmate of the Eastern Kentucky Lunatic Asylum for ten years, during all of which time she has been noisy, destructive and exceedingly filthy in her speech and habits. She required hypnotics almost every night, and even then obtained but a few hours' sleep. She had been suffering from prolapse of the uterus for some time.

When I first examined her, I found the uterus entirely outside of the vulva, the vaginal walls inverted, thickened and hard, with several large ulcers, caused by her continued picking at the mass. The os was closed, as was also the cervical canal. A large rectocele and cystocele were present.

As the patient was weak and exhausted by loss of blood from the vaginal ulcers, an attempt was made to give her some relief by returning the uterus, keeping her in bed and making use of tampons and hot douches.

She was so restless and excited that, after a few days, she was allowed to get up, and her condition became as bad as before. After a few weeks I tried to close the vagina, leaving only opening sufficient for the secretions to pass. She freed her hands from the camisole, in which she was confined, a few nights afterwards, and took out the stitches, so that this operation was a failure. After allowing the parts to heal, on March 1, 1893, assisted by Drs. Clarke, Barron and Atkins, I removed the uterus. There was little hope for the patient's recovery, as at the time she was very weak and emaciated, though still as excited and filthy as ever.

The bladder was the seat of several large pockets, one of which emptied itself during the operation. Strong ligatures were used on the tubes and ligaments,

and the uterus removed with little trouble. It was slightly larger than normal. The patient's temperature never rose above 102° F., and always fell one or two degrees after she received a temperature enema. The rectal tube was required often during the first three or four days.

At the end of six weeks she was up, and looking better than she had done for months.

During the whole time she was in bed, apparatus for keeping her quiet was necessary.

About two months after the operation she began to improve rapidly, so that in a short time she became quiet and clean in her speech and person. Her mental condition has also improved more than we were justified in hoping.

There has been no recurrence of either rectocele or cystocele, nor any sagging of the vagina.

At present her health is good; she has not required a hypnotic for nearly five months, and is as quiet and well-behaved a patient as we have in this Asylum.

Surgical Treatment of Goitre by Esothyropexia.—Dr. Poncet, of Lyon, gave a lecture before the Paris Academy of Medicine, in the name of Dr. Jabouloy, in which he advocated a new method of treating goitre by operation. It consists, after a median incision has been made, of drawing forward and fixing a more or less considerable part of the goitre, which after a variable time atrophies. This method has the advantage of complete innocuity and absence of hemorrhage. It is simple, rapid, and especially indicated in goitre complicated with attacks of suffocation. The author has applied it with success in fourteen cases. The atrophy of the goitre is realized in from four to six weeks.

Under the influence of esothyropexia, the atrophic goitre and in goitre exophthalmic (four operations), the general phenomena tend to disappear. At the same time the mental state in many degenerative goitres is modified. The intellectual functions improve after a longer or shorter time.

The cure of goitre demands five to six weeks at least.

J. C.

Forensic Medicine.

BY MATTHEW D. FIELD, M.D.,

New York.

Illinois. Commitment, Detention, Supervision, and Discharge of the Insane.

REVISED STATUTES, 1893.

Trial by jury no longer required. Two physicians may examine and report to the Court. Trial by jury if demanded. Trial may be private and at residence of patient. Provision for voluntary commitment. Supervision and visitation invested in the State Board of Charities.

MAIN FEATURES OF THE REVISED LAW.

SECTION 1. Defines the word "insane" as construed by the law.

May be detained ten days for examination.

"SEC. 2. Provides that: no insane person, or person supposed to be insane, but who shall not have been legally adjudged to be insane, shall, by reason of his insanity or supposed insanity, be restrained of his liberty: *Provided*, that this section shall not be construed to forbid the temporary detention of an alleged lunatic, for a reasonable time, not exceeding ten days, pending a judicial investigation of his mental condition."

Charge of insanity shall be made under oath.

"SEC. 3. When any person shall be, or be supposed to be, insane, any reputable citizen of the county in which such patient resides or is found may file with the clerk of the county court of said county a statement, in writing, under oath, setting forth that the person named is insane and unsafe to be at large, or suffering under mental derangement, and that the welfare of himself or

others requires his restraint or commitment to some hospital or asylum for the insane ; the said statement must be accompanied by the names of the witnesses (one of whom at least must be a physician having personal knowledge of the case), by whom the truth and allegations therein contained may be substantiated and proved : *Provided*, that when it shall appear by such statement that the person alleged to be insane has not been examined by a physician, the judge may appoint a qualified physician of the county to make such examination."

Physical and mental disability exempts patient from appearance in court.

"SEC. 4. The patient shall be produced in court, unless an affidavit of some credible person shall be filed setting forth that, in the opinion of the affiant, the physical or mental condition of the said person is such as to render it manifestly improper that such person be brought before the court."

Trial by jury when demanded.

"SEC. 5. Inquests in lunacy shall be by jury when demanded by patient or near relatives."

"SEC. 6. When no jury is demanded and the circumstances of the case are such that there appears to the judge to be no occasion for the impaneling of a jury, or that a trial by jury would for any reason be inexpedient or improper, the judge shall appoint a commission of two qualified physicians in regular and active practice who are residents of the county, to be chosen by himself, on account of their known competency and integrity, who shall make a personal examination of the patient and file with the clerk of the court a report in writing verified by affidavit, of the result of their inquiries, together with their conclusions and recommendations. The commissioners herein provided for shall have power to administer oaths and take sworn testimony."

One juror shall be a physician.

"SEC. 7. In all cases of inquest by jury, the jury shall consist of six persons, and one of the jurors at least must be a qualified physician."

Trial may be private.

"SEC. 8. Inquests in lunacy may be in open court or in chambers, or at the home of the person alleged to be insane, at the discretion of the court; the judge shall preside, and the presence of the patient shall be indispensable and no proceedings can be had in his absence. The judge may require all persons other than the patient, his friends, witnesses, licensed attorneys and officers of the court to withdraw."

Rights of female patients protected.

"SEC. 18. No female patient shall be taken to the hospital or asylum by any person not her husband, father, brother or son, without the attendance of some other female of reputable character and mature age."

Correspondence.

"SEC. 20. Every patient admitted into any public or private hospital or asylum for the insane shall have all reasonable opportunities and facilities for communication with his friends, and shall be permitted to write and send letters, provided they contain nothing of an immoral or personally offensive character, and letters written by any person to any member of the board of trustees, or of the State Commissioners of Public Charities, or to any state or county official shall be forwarded unopened."

Restraint.

"SEC. 21. No patient shall be placed in restraint or seclusion, in any hospital or asylum for the insane in the state, except by the order of the physician in charge; all such orders shall be entered upon a record kept for that purpose, which shall show the reason for the order in each case, and which shall be subject to inspection by the State Commissioners of Public Charities, and such record shall at all times be open to public inspection."

Authority to discharge.

"SEC. 22. Authority to discharge patients from either of the state institutions for the insane is vested in the trustees, but may be delegated, by a formal vote, to

the superintendent, under such regulations as they may see fit to adopt. Discharges may be made for either of the following causes, namely: Because the person adjudged to be insane is not insane, or because he has recovered from the attack of insanity, or because he has so far improved as to be capable of caring for himself, or because the friends of the patient request his discharge, and in the judgment of the superintendent no evil consequences are likely to follow such discharge, or because there is no prospect of further improvement under treatment, and the room occupied by an incurable and harmless patient is needed for the admission of others who are unsafe to be kept at large or probably curable. Authority is also vested in the trustees to release the patients on parole for any term not exceeding three months; and, if not returned to the institution within that period, a new order of commitment from the county judge shall be necessary in order to the readmission of any such paroled patient to the institution."

"SEC. 23. No person shall be discharged from a state hospital or asylum for the insane without suitable clothing and a sum of money, not exceeding twenty dollars, sufficient to defray his expenses home, which shall be charged to the patient, if a private patient, and if a county patient, to the county, and collected as other debts due the institution are collected."

Entitled to writ of habeas corpus.

"SEC. 24. Every person confined as insane shall be entitled to the benefit of the writ of habeas corpus."

Penalty of conspiracy.

"SEC. 28. Any person who shall conspire to commit any person to any hospital or asylum for the insane unlawfully or improperly, or any person who shall receive and detain any insane person contrary to the provisions of this act, or any person who shall maltreat any insane person, or any person who shall violate any provision contained in this act, shall be deemed guilty of a misdemeanor, and, upon conviction thereof, shall be fined

not exceeding one thousand dollars, or imprisoned not exceeding one year, or both, at the discretion of the court in which such conviction is had."

Insane criminals.

"SEC. 30. Nothing in this act shall be construed to apply to insane persons, or persons supposed to be insane, who are in custody on a criminal charge."

"SEC. 31. Insane convicts in the state penitentiaries may be committed to the asylum for insane criminals without formal inquest on the certificate of the penitentiary physician."

Non Residents.

"SEC. 32. Insane persons not residents of this state shall not be detained in any private institution for the insane unless committed thereto in accordance with the laws of the state or territory of which they are residents, or with the laws of this state."

State supervision.

"SEC. 33. The administration and enforcement of the laws relating to the insane of this state and their treatment, in or out of hospitals or asylums for the insane, is entrusted to the State Commissioners of Public Charities, who shall have power, from time to time, with the approval of the Governor and Attorney General, to make rules and regulations on the following matters, so far as the same are not inconsistent with any laws of this state:

1. The licensing of all houses or places in which any person can be lawfully detained as insane or of unsound mind, and the withdrawal of licenses granted by them for cause shown, with the approval of the Governor and Attorney General.
2. Regulation of the forms to be observed relating to the commitment, transfer of custody and discharge of lunatics not in conflict with the provisions of this act.
3. The visitation and inspection of all houses or

places in which any persons are detained as insane and of all persons detained therein.

4. Reports and information to be furnished by the managers or trustees and medical superintendents of all houses or places subject to the provisions of this act, and by the boards of auxiliary visitors herein provided.

Records.

"SEC. 35. The State Commissioners of Public Charities shall keep a record of the names of all persons adjudged to be insane, and of the orders respecting them by the judges of the county court, copies of which orders shall be furnished by the county clerk upon their application.

Voluntary commitment.

"SEC. 37. Any person who may be in the early stages of insanity who may desire the benefit of treatment in a state or licensed private hospital for the insane as a voluntary patient, may be admitted to such hospital on his own written application, accompanied by a certificate from the county court of the county in which such applicant resides, stating that such person is a private or county patient, as the case may be, and such person shall, if admitted to a state or licensed private hospital for the insane, have the same standing as other private or county patients: *Provided*, that all voluntary patients shall have the right to leave the hospital at any time on giving three days' notice to the superintendent.

Forensic medicine.—Professional privilege.

"A Federal Court is governed by the law of the State in which it sits with reference to the admissibility of the testimony of a physician in any given case."

U. S. CIRCUIT COURT OF APPEALS.

Mutual Benefit Life Insurance Company *vs.* Robinson.

Periscope.

UNDER THE DIRECTION OF JOSEPH COLLINS, M.D.

EXCERPTS WILL BE FURNISHED AS FOLLOWS:

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The Editor will not accept as ORIGINAL ARTICLES and CLINICAL CASES those that have appeared elsewhere.

Authors are requested to make none but typographical corrections on the proof sent to them. The manuscript must represent the final form in which the article is to be printed.

ANATOMICAL.

Contribution to the Localization of Centres for the Bladder, Rectum and for Erection.—By Dr. Arthur Sarbo (Archiv. f. Psychiatrie, Vol. xxv., p. 408, 1893).

The patient, a laborer 49 years old, had, fifteen years previous to his admission to the hospital, received a severe injury of the vertebral column. Consciousness was not interfered with, but there were present paraplegia, loss of sensation, which were quickly followed by incontinence of urine and loss of erectile power. The paraplegia and loss of sensibility soon disappeared, but the other symptoms remained *in statu quo*. For some time before he came under the observation of Dr. Sarbo, he had complained of pains in the legs, progressive weakness and difficulty in walking. On examination after admission to the hospital, it was found that there was anæsthesia of the mucous membrane of the anus, urethra, and of the skin of the perineum, penis and scrotum. A complex of symptoms which, judging from

previous experience, indicated a lesion of the lower part of the lumbar cord restricted almost to the situation of the sphincters of the bladder and rectum.

The autopsy showed a flattening of the conus and firm adhesion of the dura to the cord at the point of exit of the sacral nerves. In that part of the cord, from the exit of the fifth lumbar nerve to the fifth sacral, the white and gray substance was indistinguishable. The greatest disarrangement of the elements of the cord was seen in the area between the exit of the third and fourth sacral nerves. The columns of Goll showed ascending degeneration. Microscopical examination showed that the part of the cord between the third and fourth sacral nerves had lost completely its configuration. The nerve elements, with the exception of a few solitary fibres to be seen here and there, were entirely absent and were replaced by a mass of glia tissue in which was to be seen a great number of glia cells. In places, this glia tissue is broken into by fissures. The posterior roots were partly degenerated, their sheaths thickened, and the blood vessels, wide and empty, were increased in number. This gliomatosis extended upward as far as the fourth lumbar nerves. Above this, with the exception of the degeneration in Goll's column, the cord was normal. Below the third to fourth sacral nerves the cord was normal. In conclusion, the writer believes that the centres for the bladder, rectum and erection are situated in the sacral segment of the cord between the level of exit of the first and fourth sacral nerves.

J. C.

PATHOLOGICAL.

Absence of the Corpus Callosum in the Human Brain.—Hochhaus (Deutsche Zeitschr. f. Nervenheilk. Vol. iv., 1893).

The writer tells us that in the entire literature there are records of but twenty-four cases of this anomaly, including his own. His case was a child, three years old, who died as the result of an accident. Shortly after birth the child had been operated on for atresia ani and later for hæmorrhoids. The bodily development was tolerable, the mental, extremely deficient. During the first two years of life he had nystagmus and inability to sit or walk. At the end of this time the head began to increase in size very rapidly, so that measurements of the head were as follows: Circumference 48 cm., naso-occipital

36½ cm., bi-oral 33½. Physical stigmata, such as convergent squint, pointed ears and undeveloped tragus, broad, flat nose, defective teeth and rachitic chest were very apparent. Puncture of the arachnoid sack at the level of the third lumbar vertebra with the hopes of benefitting the supposed hydracephalus was followed by the escape of 25 cm. of watery fluid.

Post-mortem. The brain showed :

1. General hypertrophy.
2. Total absence of the corpus callosum.
3. Extraordinary richness of convolutions with characteristic fissuration on the median side.
4. Absence of the psalterium, the anterior and median commissure and striæ longitudinales mediales (nervus lanciai).
5. The formation of very wide ventricular cavities, which was most apparent in the fifth ventricle.

The hemispheres were united only by a slight membrane.

The bone of the skull was compact, the great fontanelle 4 cm. wide, 1½ cm. long. The dura was not adherent; the pia extremely vascular; convolutions not flattened, and the sulci very wide. The weight of the brain was 1,350 grm. The lateral ventricles were filled with clear serum and the cerebellum was normal. The brain was increased mainly in height and breadth, very slightly in length.

Microscopical examination of the brain showed a great increase of the neuroglia and the ganglionic cells rich in number and properly formed. In the spinal cord there was marked increase of the interstitial tissue, especially of the anterior and lateral columns, and in some places a lessened number of nerve fubules. The lateral pyramidal tracts were normal. The changes in the gray substance of the cord were quite similar to that found in the gray matter of the brain. The writer remarks that the changes in the cord are not reconcilable with the absence of the corpus callosum, but very readily so with the hypertrophy of the brain.

It is to be remarked that in all the other reported cases of absence of the corpus callosum, the brain was either smaller than normal, or normal in size, and the hypertrophy of the brain in this case is to be considered independent of the anomaly. Etiologically, the writer considers it a congenital defect of development appearing about the fourth month of foetal life.

J. C.

An Atypical Form of Gliosis Spinalis.—Oppenheim (Archiv. f. Psychiat. u. Nervenkr., xxv., Part ii., p. 315, 1893).

A forty-year-old man taken sick in 1882 with progressive disturbance of vision, lancinating pains and feeling of weakness in the legs, previous diplopia, girdle sensation, sensation of numbness in feet and of cold in the legs, and uncertainty of gait. Later on, incontinence of urine and feces. Hemiparesis had existed for a long time. In 1884, marked kyphoscoliosis of the thoracic vertebræ. Double optic atrophy, right pupil irresponsive to light, the left responded slightly. Absence of right patellar reflex, left normal. No motor weakness in the extremities, likewise no muscle atrophy. Ataxia and Romberg's symptom extreme. Sensibility of the arms good. On the left hip feeling quite lost, at least complete analgesia and thermo-anæsthesia, while sensation of touch was not entirely gone. A similar disturbance but less marked over left thigh which diminished in passing to the leg and foot. In the right lower extremity sensory disturbance was much less marked, less definite and only in patches. For instance, pain and thermo-anæsthesia on the right side was only apparent around the patella. On the shoulders and around the scrotum the loss of sensation is the same on both sides. Sensation of position well preserved. In June, 1890, psychical disturbance—dementia paralytica; death, three months later.

Post-mortem—Pachymeningitis and leptomeningitis cerebri chronica. Gliomatosis medullæ spinalis et degeneratio grisea funicul, post. Fractura tibiæ et fibulæ dextra.

Microscopically.—The gliosis began in the lower part of the cervical enlargement and extended through the thoracic portion of the cord and as far as the lumbar enlargement. In the cervical portion the gliosis confined itself to the area of the posterior columns and the posterior commissure, in upper thoracic portion it extended itself laterally and posteriorly so that at this level the gliosis involved the posterior columns, the posterior horns, the commissures, and here and there in various sections it extended into part of the anterior horns.

In the middle and lower sections of the thoracic portion of the cord and likewise in the lumbar portion the area of gliosis is more and more confined to the left posterior horn, and thereby Clark's column and the posterior column on the left side seem to be atrophied from the pressure of the diseased area.

While in the lower thoracic cord the area of gliomatosis involves the left posterior horn and causes atrophy of Clark's column and the posterior columns, on the right side at this level there appears sharply limited to Goll's column a complete degeneration and an accompanying atrophy of the fibres of the medial half of Clark's column. Farther down, that is in the upper lumbar cord, this degeneration of Goll's columns becomes diffuse, especially toward the right posterior root zone and right posterior column.

In the lumbar cord, the gliosis in the left posterior horn is confined to a very small area. The degeneration of the right posterior column is, however, very apparent.

The question which the author puts to himself: Is this a case of tabes dorsalis with syringomyelia, or a special form of gliosis which by its spreading out into the posterior columns has produced the symptoms of tabes?—he does not answer definitely, but leans to the latter supposition.

J. C.

Cortical Localization of the Movement of the Face.—Brissand. (*Le Progres Medical*, Dec. 31, 1893).

A man, eighty years old, who had for long suffered from myocarditis and a dilated heart secondary to emphysema, was stricken with an apoplectic attack in April, 1889. Loss of consciousness for about an hour, paralysis of the entire right side, and aphasia. Little by little, in the course of a few days, speech returned, the hemiplegia gradually passed away, and finally there was left but slight numbness and clumsiness of the fingers. Two years later, the patient entered the hospital on account of cardiac insufficiency. At this time the symptoms of the previous hemiplegia referable to the right extremity, had about disappeared. The face was absolutely asymmetrical, the mouth turned to the left, the left commissure of the mouth open, the right commissure firm, lowered, and allowed a continual dribbling of saliva. The left nostril less prominent, the ala of the nose on this side completely immobile, and the lines of expression are effaced. The right eyelid drooping; meanwhile, it is possible to close it voluntarily, but not so well as the left lid. The movements of the eyeball are well preserved, but the pupil of the right eye is greatly dilated, but it reacts to light and distance. The lines on the forehead on the right side are quite effaced, but are very pronounced on the left side of the median line.

On autopsy of the brain, a cortical lesion, an area of yellow softening situated in left Rolandic operculum, just behind the frontal operculum, was found. The softening extended down to the Island of Reil. There was no other superficial lesion of the hemispheres. The two peduncles were equal without tracts of degeneration, but on examination with the microscope it was possible to recognize a great number of granular bodies in the neighborhood of the inner part of the left peduncle. The pons, the medulla, and the pyramids were symmetrical.

The author concludes that the centre for the movement of the face in man is in that portion of the ascending parietal operculum situated just posterior to the inferior extremity of the fissure of Rolando. J. C.

Oxaluria and its Relation to Nervous Disease.—I. Adler, M.D. (*Med. Record*, June 3, 1893). Oxalic acid is a normal, though possibly not a constant constituent of the urine. The amount present in a given quantity of urine can be determined with any degree of reliability, only by quantitative analysis. All approximations by means of microscopic examination are untrustworthy. Its chief source is the oxalic acid in the food, though minute quantities probably are produced in the course of normal metabolism. Further investigation will be necessary to demonstrate, if and under what conditions morbid metabolism affects the production of oxalic acid. Impeded respiration, diseases of the heart and lungs do not of themselves tend to produce an excess of oxalic acid in the urine. The establishment of pathological oxaluria as a type of disease *sui generis* is not warranted by facts. The nerve symptoms assumed as characteristic of pathological oxaluria, are not caused by excess of oxalic acid in the blood and urine. Analysis will show that such excess is by no means as frequent as has often been assumed. When such excess does occur, not to be accounted for by ingesta, it is probably one of several symptoms of metabolic alterations primarily caused by disturbances of the nervous or digestive organs, or both, but no factor in the causation of disease. In considering the excretion of oxalic acid in the urine it is of the utmost importance to take into account at the same time the excretion of the other principal constituents, particularly urea and uric acid. A. F.

Habitual Headache as a Cardinal Symptom of Various Nasal Affections.—Dr. J. Scheinmann, (Berl. Klin. Wocheschr., No. 49, 50 and 51).

A knowledge of the point of departure of cephalalgia furnishes the clew for its rational treatment. The new anti-cephalalgics are often repeatedly employed in cases in which the local origin of the headache is afterwards demonstrated. Even the diagnosis of hysteria and neurasthenia should not exclude the search for some local point of origin of a headache, as there are nasal abnormalities which are frequently associated with these nervous affections, and where topical and general treatment gives excellent and permanent results. It is to be borne in mind that even severe affections of the nasal and neighboring cavities may exist for a long time and excite the most troublesome headaches without attracting the attention of the patient or practitioner.

The author's experience in the past few years has strengthened his conviction that hyperæsthesia of the nasal mucous membrane, produced by polypoids, deflections of the septum or by other influences, not infrequently cause headaches of varying intensity and form.

In addition to local disorders, hyperæsthesia nasalis may trace its cause to constitutional conditions, such as neurasthenia. Neurasthenics are particularly predisposed to nasal hyperæsthesia in consequence of the remarkable dependence of swelling of the inferior turburated bones upon nervous influences. The existence of cephalalgia without definite cause, invariably demands a thorough examination of the nasal cavities, even in cases of neurasthenia and hysteria. A polypus in one of the nostrils may produce unilateral cephalalgia, but no local phenomena. It is only, perhaps, much later that occlusion of the nostrils occurs. A careful inquiry into the history of the case will almost invariably elicit the information that the pains radiate from the root of the nose to the eyes or temples, or that a dull pressure is constantly felt at the root of the nose, giving place at times to violent headache.

As regards empyema of the antrum of Highmore, one-seventh of all of the cases treated by the author suffered frequently for years from more or less unilateral headache. It is worthy of note that there are cases of empyema of the antrum without purulent discharge

from the nose, cases of so-called latent empyema, in which the patients are absolutely ignorant of their condition. This condition is attended with neuralgic pains in the frontal region of the corresponding size.

Scheinmann details the histories of four cases of latent empyema of the antrum of Highmore, in which cephalalgia was a prominent feature for months and years. All of these cases presented some abnormality of the septum or of the turbinated bones. An important aid in the diagnosis of empyema antri Highmores is afforded by intra-buccal illumination.

Scheinmann also cites a series of eight cases of empyema accompanied by foetid discharge from the nose and headache. The latter is almost invariably located in the frontal regions. In these two series of cases, absolute relief from the headache was afforded by opening and draining the antrum through the alveolar process of the superior maxilla.

Empyema of the frontal sinuses, nasal gummata, caves of the nasal bones, ulcers and ozoena simplex, may all give rise to obstinate cephalalgia.

The author recognizes two forms of cephalæa: 1. Cephalic pressure, either unilateral or occupying the entire frontal region, combined with diminished cerebration. The nasal examination reveals almost invariably in these cases, the picture of chronic hypertrophy of the inferior turbinated bones. Cocainization of the latter will cause the symptoms to temporarily disappear. 2. The severer forms of cephalalgia, simulating neuralgias, almost always unilateral. Aside from the hyperæsthesia produced by spines and ridges of the septum, these cases usually involve empyema of the neighboring cavities and caves of the lateral nasal walls.

The crystallized experience of the author is as follows:

1. Habitual headaches may be traced in many cases to some nasal affection.
2. A headache is frequently for a long time the only expression of even severe disorders of the nose.
3. In all cases of cephalalgia of unknown origin, careful examination of the nose is imperative.
4. The existence of neurasthenia does not exclude a local origin of the headache.
5. Demonstration of the nasal origin of the headache allows the pronouncement of a favorable prognosis, and therapy gives good and enduring results.

P. M.

A Study in the Etiology of General Paralysis.—Dr. Andrea Cristiani, in an excellent and comprehensive review of the Etiology of Paresis and from his own personal observations on this subject, gives an instructive paper in the *Rivista Sperimentale di Freniatria e die Medicina Legale*, Volume XIX, Fas. II. He divides his twenty-five years hospital experience into five epochs of five years each, and finds that the percentage of cases is constantly increasing. The figures being, 2.43%, 3.16%, 3.08%, 3.95%, and 4.63% in the last epoch. He finds that 90.90% of paralytics are males, while only 9.09% are females. As to etiological factors, syphilis was met in 62.79%, heredity in 36.36%, spontaneous in 27.97%, mental emotion in 27.97%, alcoholism in 20.97%, sexual excesses in 11.88%, cerebral injury in 4.29%, and insolation in 1.43%. In regard to sex, he finds that in the males, syphilis was present in 59.87%, and in the females 36.61%; alcoholism, 17.22% in the males, 3.18% in the females; venereal excesses, 9.11% in the males, and only 1.50% in the females.

In respect to position in life and the civil state, 60.83% of the paralytics were married, of these, 78% had families with numerous children, 22% had no children, 17.48% were bachelors, 9.79% widowers, 18.18% were actors, 15.38% manufacturers, 12.58% business men, 11.18% professional men, 10.48% military men, 10.19% farmers, 2.09% of the women were domestic. No priests and no prostitutes were affected.

As to age, 3.49% occurred between the twentieth and thirtieth year, 25.17% between the thirtieth and fortieth, 41.96% between the fortieth and fiftieth, 12.58% between the fiftieth and sixtieth, 3.49% between the sixtieth and seventieth. In the females, the greatest frequency occurred between the fortieth and fiftieth year, being 64.70%.

52.44% of the paralytics lived in the city, 44% in the country. In the months of May and June, the largest numbers were received in the hospital, being 11.88% and 13.89%, while in December and February, the smallest numbers were received, being 6.29% and 2.79% respectively.

W. C. K.

Beneficial Results of Salicylate of Soda in Infantile Tetanus.—Drs. Sotolongo and Lynch describe a case of tetanus in its initial state, occurring in a baby nine days old, and which in all probability arose through infection at the umbilicus. The mother was delivered

by an ignorant midwife, and as a result, suppuration at the umbilicus followed. The wound was treated with bichloride of mercury, iodoform and antiseptic dressings, while internally the hydrate of chloral and the bromides were administered. The trismus was so pronounced that the child's mouth could hardly be forced open, and its food and medicine were given drop by drop. The improvement was hardly perceptible, and fearing a fatal issue, the author decided to try the salicylate of soda. Accordingly, twenty centigrammes were given in two portions in a period of four hours. Noticing an improvement after the first dose, the father gave the second powder at the end of the third hour. On the following day a notable improvement was perceptible, and the drug was continued, and the baby made a complete recovery.—*La Abeja Medica. Habana, Jan. 1, 1894.*

W. C. K.

Changes of Respiration in the Insane.—In the *Rivista Sperimentale di Freniatria e di Medicina Legale*, Vol. XIX, Fas. II, Dr. Cesare Rossi describes the conditions of respiration as occurring in cases of depression, exaltation and general paralysis. Sixty patients were examined, and the following conclusions were deduced:

1. In mental diseases, there occur many times varied alterations of the respiratory movements, which are independent of any other factor, save the altered function of the psychical sphere.

2. These alterations cannot be referred to any single nosological form, but are referable to the two fundamental symptoms, exaltation and depression, or to an hyper and hypo-activity of the respiratory function.

3. In the depressed state, when to the diminished psychical activity there are associated grave disturbances in the sensitive sphere, the respiratory tract presents characters which may be referred to a sense of anxiety.

4. In the emotional state which so often accompanies the depressed psychical state, there is noticed a true emotional tremor of the respiratory muscles easily distinguished from tremor of a different nature.

In paresis, apart from the alterations which stand in accord with the altered psychical functions, the respiratory tract offers in every case a characteristic tremor from the incipency to the end of the disease.

W. C. K.

Society Reports.

PHILADELPHIA NEUROLOGICAL SOCIETY.

Stated Meeting, December 26, 1893.

President, Dr. CHARLES K. MILLS, in the chair.

Dr. FRANCIS X. DERCUM exhibited

A CASE OF SCLERODERMA OF TRAUMATIC ORIGIN.

The patient whom I have here is one of great interest as the affection is exceedingly rare. Last August this man, while working in a stooping position, was struck on the head by a piece of ice weighing sixteen pounds which had fallen a distance of ten feet; he was rendered unconscious and brought to the Jefferson Hospital. There was a transverse lacerated wound over the occiput which was sewed. The wound did well surgically, but the man himself did not do well. He gradually became more and more neuræsthenic and had persistent pain in the neighborhood of the scar. He has also general headache and backache and some tenderness over the spine.

In addition to the symptoms of general neuræsthenia, we noticed four weeks ago (what the patient had observed two weeks earlier), a curious condition of the skin. The skin about the arms, shoulders and neck began to feel very tense and puffy. Dr. Cantrell has studied the case with me and the condition of the skin has steadily become more marked as we have watched the case. The case is evidently one of scleroderma. This affection in a number of instances has followed nervous shock. In the minds of dermatologists, scleroderma is at present closely associated with morphœa and hemifacial atrophy. The later condition we are pretty certain from one or two post-mortems is due to descending degeneration of the motor root of the fifth nerve. In this class of cases we evidently have to do with a tropho-neurosis.

Dr. J. ABBOTT CANTRELL showed

A CASE OF MORPHŒA OF TRAUMATIC ORIGIN.

Dermatologists look at these cases as two varieties of one disease. One is the diffuse or œdematous form and the other the circumscribed or atrophic form. I have brought this case because Dr. Dercum intended to report his case of diffuse scleroderma and because, as in his case, there is also a history of traumatism. This child while playing at school fell and hit her head on the sharp edge of a desk. There was no rupture of the parts. There was swelling and the consequent œdema following such accidents, and the atrophied condition which you see began immediately afterwards. The injury dates back about eighteen months. This is the form which in the books is called morphœa. In this case it affects the right side of the head extending down towards the external canthus of the eye.

Dr. CHARLES K. MILLS.—In the first case it seemed to me that the pathological condition probably involved the subcutaneous tissue as well as the skin; in other words, we may have not only scleroderma, but a myxœdemoid condition.

The second case can be readily explained on the theory of traumatism involving the motor and trophic branch of the fifth nerve in the particular locality where the affection began. I have seen several cases of hemiatrophy of the face. I believe that in all these cases there is involvement of the muscles supplied by the fifth nerve. I might call attention to a paper by Montgomery that appeared in the *Medical News* during the past year on unilateral facial hypertrophy.

Dr. JAMES HENDRIE LLOYD.—I showed before this Society, about a year ago, photographs of a case of scleroderma or hemifacial atrophy, beginning well up on the vault of the cranium, running down the median line of the forehead and involving the root of the nose, running down also under one eye. In my case, however, there was no history of trauma. The patient was a young Swedish woman at family service. There was no atrophy of the muscles, nothing but this localized area of atrophy.

Dr. THEODORE DILLER, Pittsburg.—My experience with myxœdema is limited to two cases, the second of

which I saw only a short time ago. In examining Dr. Dercum's case, the question arose in my mind: in what respect does this skin-thickening differ from that which is seen in myxœdema? Another query that arose was: might not this possibly be the beginning of myxœdema? I simply raise these questions with the hope that Dr. Dercum will consider them in any further remarks that he may have to make.

Dr. FRANCIS X. DERCUM.—I dismissed the idea of myxœdema on account of the absence of other symptoms—the absence of the spade-like hands which are among the earliest signs of true myxœdema. The face was not affected early. I had the opportunity of seeing the man before the condition came on and have seen him frequently since. Lastly, the case has followed the history of scleroderma which usually begins over the back of the neck and extends to the trunk and limbs.

Dr. Cantrell's case is of exceeding interest because it looks as though the blow might have given rise to some direct nerve injury and the atrophy might be looked upon as the result of that. If this is the proper explanation it is curious that these conditions do not more frequently follow nerve injuries.

Dr. C. S. POTTS exhibited a patient with

HALLUCINATIONS OF SIGHT, TOUCH, TASTE AND SMELL. (See page 178.)

The patient stated that in January, after he had seen Dr. Potts, he passed into a condition of profound stupor from which he was aroused only by severe shaking and loud calling. This condition continued from the last of January until the fifth day of March. The latter part of February he was removed to the asylum. At the end of March he was discharged from the asylum.

The patient then retired.

Dr. H. R. SPRUANCE, of Wilmington.—In regard to the attack of unconsciousness to which the patient has referred the family give a different history. While he says that he was asleep, his family state that at one minute he would be so weak that he could not move, the next he would pick up his wife and carry her, and at times it required two or three men to hold him down. He was taken to the Delaware State Hospital for the Insane. There he was treated with tincture cinchonæ

comp. and syrupi pruni virgin., and got somewhat better, ordered by Dr. Richardson now Superintendent at Norristown, under whose care he was, before he was sent to the hospital. He had a nurse with him at night constantly for one week, but says he has not yet seen that nurse.

He describes one of these objects as red, pushing a red hot iron around the room and across the bed and with an explosion coming down and lighting on him. Others are red and white.

Dr. JAMES HENDRIE LLOYD.—The French authors say that the reason that the English and Americans do not have hysteria is because they do not diagnose it. The longer I live and the more I see of the practice of medicine, the more am I convinced of the accuracy of this remark. There is but one disease that will produce the lethargy such as has been described in this case. There is no disease except the grand hysteria that will do this. That lethargy is one of the most marked psychological stigmata of the grand hysteria. I do not know of any other condition that will produce a lethargic state for four or five weeks in a healthy man unless it is hysteria in one of its major manifestations.

In *Brain*, Hitzig, of Halle, one of the most eminent experimenters in Germany, has put on record a case of remarkable lethargy occurring in a workman twenty years of age, following extensive injury to the head and arms. This lethargy presented a periodical aspect. The man would lie for thirty-eight or forty hours in the lethargic state, all the time losing weight and the specific gravity of the urine running down, the nitrogen being decreased. In other words, showing the peculiar alteration in nutrition which has been described by Tourette and Cathelineau, this being preceded by hysterical prodromes. The paroxysm would pass off, to recur in nine or ten days. This had continued for several months when the man came under Hitzig's care and was hypnotised and cured.

This lethargy is always associated with intervallary stigmata. I suspect that this man, if carefully examined, would have shown some of these stigmata. There might have been found some alteration in sensation, probably some areas of anæsthesia, or some narrowing of the visual fields. He has a vision of red and probably has preservation of the red field which the French for the last twenty years have been talking about as one of the most common visual stigmata of hysteria.

Charcot has described one peculiar characteristic of the grand hysteria which he named zoöpsia, the hallucination of the sight of animals. This is seen in a minor degree in many cases of hysteria. I have, however, never seen or heard of a case where this was so marked as in this instance. Considering the zoöpsia, considering the lethargy and considering the slight tremor of his hand which is distinct, I have very little doubt in my own mind that this is one of the major states of grand hysteria, one of the aberrant, atypical forms which we see not infrequently if we look for them.

There are, it is true, certain sensory hallucinations in the insane. I do not think that this case can be included among these. A few years ago, I saw at the Philadelphia Hospital a colored man in an advanced stage of senile paresis. He had the hallucination that he was covered with a serpent's skin with two holes for the eyes, one for the mouth and another to urinate through. This general cutaneous hallucination we see in senile paresis. The present case is advanced in years, but presents no evidence of insanity. I do not think that we can hesitate as to the diagnosis.

Dr. THEODORE DILLER, of Pittsburg.—I might, in this connection, relate two cases of lethargy which have recently come under my observation. A colored boy, 14 years of age, went to Washington three years ago, and while there got into a fight and was struck on the back part of the head with a heavy iron bar. A wound three or four inches in length was produced. He was rendered unconscious for a few minutes. The wound healed and he was apparently well for six months. It was not thought a fracture had been produced. Then he had an attack of lethargy which was frequently repeated. He got stupid and heavy and would lie in bed for eight days, passing the urine and feces in bed and taking scarcely anything to eat. In fact, the case was almost like that one reported by Professor Hitzig. These attacks recurred every four weeks and always lasted precisely eight days. After this had gone on for two years he returned to Pittsburg and came under my observation. I found concentric contraction of the visual fields, and some anæsthesia and great susceptibility to hypnotism and concluded that he was an undoubted case of hysteria. A full account of the case will appear in the next number of *Brain*.

The second case was a very extraordinary one of hys-

terical motor aphasia and lethargy. The man came under my observation two months ago. Mentally, he seemed stupid and child-like, but that, I imagine, was his usual condition. He stated that his voice would suddenly leave him and then come back. These attacks would occur every two or three days and would continue from three to six hours. During this time he would be perfectly conscious and be able to understand conversation, recognize objects and think of the words that he wished to use and write them.

Clinically, we would say, that this was a case of motor aphasia; but from the fact that the attacks came on suddenly and disappeared and reappeared suddenly, there would be a *priori* reason for thinking that the case was one of hysteria. On examination, I found general blunting of sensation all over the body, but now special spots of anæsthesia. There was concentric contraction of both visual fields. A month later I found him in the insane asylum. There he had no attacks of motor aphasia, but was having attacks on alternate days, lasting two or five hours in which he would be apparently unconscious, and from which he could not be roused. I have no doubt that these are attacks of lethargy. This man possesses great faith and has experienced great comfort from blessings received at convents. A strong suggestion followed up on several occasions caused these attacks of lethargy to disappear. The man is now brighter and improved in every way.

I must agree with Dr. Lloyd that lethargy is a hysterical manifestation. I know of no other affection of which it is a symptom, and it can scarcely be regarded as a disease in itself.

Dr. JOHN K. MITCHELL.—In spite of the arguments that have been advanced, I am not convinced that this case is hysterical. If, on examination, it were shown that he had narrowing of the visual fields and reversal of the color fields, I, perhaps, should think that this was a hysterical condition. Still, it seems curious that it has not been mentioned that so many of the cases of delusions of uncleanness take the form that they are covered with animals. I have had for a year an insane woman under my care who has the delusion sometimes that she is covered with black insects and sometimes with caterpillars. She will pick them off and throw them on others. We have gotten rid of the insects for two weeks at a time by the subjective measure of scrubbing with oil. This

woman has only two delusions, the one of uncleanness and another that her husband has lost his money and they must pull the house down. In some respects she is perfectly sane. In my opinion this patient presented is in the early stages of insanity and will grow worse as time goes on.

Dr. JOSEPH LEIDY, JR.—The fact that the man recognizes that these objects do not exist and presents no other evidences of insanity is against such an idea. In connection with Dr. Mitchell's remarks, I remember distinctly a patient as a neighbor at table at the Pennsylvania Hospital, a man who was perfectly sane upon every subject except one, that of uncleanness. He had periodic attacks of melancholia. At other times, the mesaphœbia took the place of the insanity.

In this case, I think that until the visual fields have been examined and the question of anæsthesia determined in connection with any other symptoms, we should reserve a positive opinion, although it favors hysteria.

Dr. CHARLES K. MILLS.—This man may pass into a condition of true insanity. A patient may for a long time struggle against such hallucinations and finally come to believe in their reality. I remember the case of a man who for months had notions partly hallucinatory with which he struggled for a long time, feeling that they were not real, but at a certain time, which he described, he became convinced that he had been in error and that these were realities. From that time he continued to believe in them and out of a comparatively simple condition evolved a rather elaborate systematised delusion. Under the ordinary rules of diagnosis, Dr. Lloyd's position is well taken and this case could be better diagnosticated as hysteria than as anything else, but this fails fully to explain the case and fails to indicate with any certainty what the future of this man will be. We should do something in the way of treatment for this man. The strongest efforts should be made as the result of this consultation, by the physician in charge, and that it should be impressed on the patient, that his is a nervous affection that can be cured and that as a result of this consultation, means of cure have been decided upon. Then I think that it matters little what will be the exact method of treatment. Isolation, hydrotherapy, static electricity and metallic tonics would be of service.

Dr. G. BENJON MASSEY.—It seems to me that the

diagnosis of hysteria is hardly tenable. In the similar instance referred to by Dr. Mills, it can be seen that the case was one of genuine hallucinations, originally, in which the intellection of the patient failed to be overcome. I think that I have seen such cases where ultimately, as the hallucinations increased, the disease producing the hallucinations increased, the intellect became affected and the patients finally believed that the hallucinations were real. This man tells us that he does not believe that these things are real, but he acts upon the belief that they are real more thoroughly than would be the case in hysteria. He is constantly going through motions which to my mind are more elaborate than mere hysterical conditions would produce, for it is rare that hysteria acts itself out thoroughly. It seems to me that the best interests of the man and his family would be subserved by considering this a case of threatened insanity, and treating it from that point of view.

Dr. F. X. DERCUM read a paper on

A CASE OF SYRINGOMYELIA WITH AUTOPSY.

DISCUSSION.

Dr. CHARLES W. BURR.—I made a few weeks ago a post-mortem in a case of syringomyelia in which there were no sensory changes. The man began sixteen years ago to have pain in the neck, very severe and soon after began to lose power in the arms and slightly in the legs with some wasting. Six years ago he came to the Home for Incurables with paralysis of arms and legs. Sensation to heat and cold was normal and there were no sensory changes when I last examined the man, a year ago. The absence of sensory changes made were put to one side the diagnosis of syringomyelia.

At the post-mortem examination, I found quite a large canal beginning in the uppermost part of the cervical region and extending down to the fifth dorsal nerve and transversely occupying almost the whole of the cord, but microscopically not appearing to involve the posterior white matter very much. There has not yet been time to make a microscopical examination. The idea that sensory changes are an essential part of syringomyelia seems from this case to be misleading.

Dr. FRANCIS X. DERCUM.—The symptoms that would

ensue would depend largely upon the portion of the cord destroyed. There would be muscular atrophy if the anterior portion was encroached upon. In this case there was no marked anterior wasting. I am sorry that in this case I did not make more detailed investigation of certain muscles and certain muscle groups. There was, however, no marked wasting anywhere. The cavity was accentuated posteriorly as it was also on one side.

The case was of interest on account of the marked contractures. I have now under observation a case where there is marked atrophy, distinct thermal changes and Charcot joints. In the case reported to-night there were also contractures of both arms and legs. The cavity was very large in the cervical region, cutting off both pyramidal tracts. The patient had in addition to the symptoms of syringomyelia, those of marked lateral sclerosis.

By Dr. JAMES HENDRIE LLOYD, read a paper on

PROGRESSIVE MUSCULAR ATROPHY WITH
ARTHROPATHIES OF THE KNEE JOINT,
(WITH EXHIBITION OF PHOTOGRAPHS OF
THE HANDS AND KNEES.)

This case is of peculiar interest because it is one of pure muscular atrophy with arthropathies. The case came under my care at the Methodist Hospital where I found the woman suffering with enlargement of the knee joints. My predecessor and one of my surgical colleagues had tapped the joints. There was not the same lateral deviation as occurs in some cases. In this case, the attention had been directed almost exclusively to the knees. The moment that I saw her I was struck with the peculiar appearance of her hands. She had the main-en-griffe on each side. I found the arm muscles extensively atrophied, those on one side almost entirely gone. There was also scoliosis. I at first thought that the case was one of syringomyelia and made suitable tests for sensation, but the results were negative. There was no thermal anæsthesia and no alteration of sensation in any way. I thought that I was not justified in making a diagnosis of syringomyelia. We have here the muscular, motor, atrophic, joint, and skeletal changes associated with syringomyelia, but not the sensory changes. I,

therefore, report it as a case of progressive muscular atrophy associated with arthropathies. At the same time, I think that the association of spinal arthropathies gives the case a rather unique appearance and that the condition is probably due to some form of gliomatous change in the medulla spinalis.

In a former somewhat extensive study of the subject I found arthropathies reported as occurring in locomotor ataxia, general paresis, syringomyelia, and sclerosis in plaques. There are no cases recorded with progressive muscular atrophy, except one case reported by Rosenthal twenty years ago. That case, I think, was likely one of syringomyelia. The present case will be reported more fully in detail for publication.

Dr. FRANCIS X. DERCUM.—We are still in the developmental stage of our knowledge in regard to syringomyelia and it may be that in these joint changes we have a point of differential diagnosis between simple muscular atrophy due to chronic polio-myelitis and muscular atrophy due to syringomyelia. Of course, it is only by the study of many cases that we can gain any definite knowledge upon this subject.

Dr. F. SAVARY PEARCE reported

A CASE OF MULTIPLE NEURITIS SIMULATING
LANDRY'S PARALYSIS, IN THE RAPIDITY,
ORDER AND EXTENT OF PARALYSIS.

DISCUSSION.

Dr. CHARLES K. MILLS.—The question suggests itself whether the term neuritis as descriptive of this case is well chosen. Pain and sensory changes were not present, with the exception of slight tenderness in the popliteal space. The question occurs in connection with this case and other somewhat similar cases. Have we inflammatory disease of any type? Have we not really a form of toxic disease causing multiple degeneration, and should we not add to our nomenclature multiple degeneration of nerves instead of always speaking of multiple neuritis?

Dr. FRANCIS X. DERCUM.—I had an opportunity of studying this case during the summer and I was never absolutely certain in my own mind with regard to the

diagnosis. I roughly grouped the case under the head of Landry's palsy, although in some respects it differed from the latter disease. It looked as though the trouble, possibly toxic, had affected not only the cord, but also the peripheral nerves—as though it were a mixed case. I remember that it was Dr. Mills who first called attention to these mixed cases of multiple neuritis with cord involvement.

Changes in the Ganglion Cell from Birth to Old Age.—Hodge (*American Therapist*, November, 1893). Hodge observed the difference in the first cervical ganglia of a foetus at full term and of a man dying of old age at ninety-two. The ganglia were hardened in osmic acid and corrosive sublimate, embedded in paraffin and stained together on the slide.

The first difference to be noted between the ganglia is one of size, the ganglion of the old man being, by measurement, one hundred and five times larger in bulk than that of the fetus. This increase in size is seen from the sections to be due chiefly to sclerosis, the old ganglion consisting practically of a knot of connective tissue, in which are sparsely scattered small groups of nerve-cells and fibres.

In the cells themselves the most striking difference is the almost complete absence of nucleoli from the ganglion cells of the old man. Coupled with this is the extremely shrunken condition of the nuclei. The cells in this instance are largely filled with pigment and fat, both substances showing black in osmic acid specimens, the pigment being yellow and the fatty masses being represented by large vacuoles in sections by the corrosive sublimate method.

Careful measurements and estimates of pigment are given in tables. Similar changes are not found in the brain cells.

J. C.

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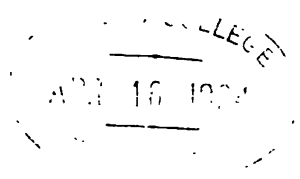
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Original Articles.

THE PSYCHOLOGICAL ANALYSIS AND PHY-
SICAL BASIS OF PLEASURE AND PAIN.¹

BY LIGHTNER WITMER, PH. D.,
University of Pennsylvania, Philadelphia.

IN the report of a recent meeting of the Neurological Society, I notice as part of a discussion on the nature of pain the following statements: "Psychologists seemed to have come to the conclusion that pain was not a sensation, but a form of feeling; that it was not to be classed with sensations of touch, or of temperature, or of heat; that it did not have peripheral end-organs, and that there were no nerves in existence which on irritation produced pain alone; that in attempting to locate such a tract we were pursuing a will-of-the-wisp. Pain was not a special sensation, but a modification of it. We might have a painful wound, but we did not have a simple sensation of pain; it was always combined with something else."

These statements seemed to me so remarkable, that in preparing a paper on the nature of pleasure and pain to read before a body of neurologists, I felt that I could not avoid a direct reference to them. They are note-

¹ Read before the Neurological Section of the Academy of Medicine, February 16, 1894.

worthy in the first place as indicative of the willingness of a neurologist to accept as conclusive the results of mental analysis and to extend the validity and application of such results over a class of facts not altogether germane to the science of psychology. In the second place, they demand some consideration by way of modification, because of their somewhat exaggerated estimate of the status among psychologists of the so-called "quale-theory," as to the nature of pleasure and pain—the theory which, in Dr. Dana's words, considers "pain not a sensation, but a form of feeling." Modern psychologists cannot be said in any sense of the word to have come to accept the quale-doctrine as an explanation of pleasure and pain phenomena. This theory is a bit of psychological drift-wood that has been thrown before the feet of the modern psychologist by the waves of past speculations. From Aristotle to Mr. Marshall, the theory has been presented in many forms. Numberless attempts have from time to time been made to explain the physical basis of pleasure and pain from the point of view of the quale-doctrine, but as Mr. Marshall so clearly shows in his admirable restatement of the doctrine, they all fail of the essentials of a satisfactory explanation. Even his own physiological interpretation would succumb before Mr. Marshall's critical analysis. In common with those that precede it, it does not explain, but only restates the facts, coupled with some observations of very general and somewhat superficial nature as to the relations between pleasure and pain states and certain physiological processes of the human body.

It is the purpose of this paper: 1. To consider critically the psychological basis of the quale-theory. 2. To put before you the physiological explanation of pleasure and pain phenomena as given by Mr. Marshall¹ in what

¹ It is earnestly hoped by the author of this paper that none of his remarks may through some inadvertent mode of expression be taken as directed personally against Mr. Marshall. The writer does not presume to think that anything he can say will lessen the esteem in which Mr. Marshall's work is held. The stand taken is against the conclusiveness

is the latest and clearest formulation of this doctrine.

3. To show that modern psychologists are not at all agreed as to the necessity of explaining pleasure and pain by reference to the quale-doctrine.

Of the various mental phenomena to which we give the name of pleasure or of pain, I wish to call your attention to: 1. Pains that are of simple, vivid and distinctive character and that may be exactly localized—such as the pain of a severe burn, the prick of a pin, the pain of neuralgia.

2. The pleasures concomitant and associated with the exercise of the function of reproduction. Pleasures and pains are so intimately connected in common thought and in psychological treatment that both states must be considered in an explanation of either one. The pleasures of sex are here emphasized as the only pleasures that approach in distinctness, definiteness, intensity and apparent simpleness of character the extreme states of pain mentioned above.

3. Those more indefinite and for the most part not very intense pleasures and pains that are a constituent part of many mental states—the agreeableness or disagreeableness of an emotion or a sensation; the agreeableness of a piece of music, or of the taste of sugar; the disagreeableness of a sensation of cold.

It is the peculiar task of the psychologist to examine these states of extreme pain, of extreme pleasure, of agreeableness and disagreeableness, to inquire whether they be like or unlike, simple or complex, and to discover their relations to other phenomena of consciousness.

of the argument for the quale-theory and the possibility of any physiological interpretation of it in the present state of physiological speculation. Mr. Marshall's formulation has been selected because of its modernity and completeness, and also because of the *ex cathedra* utterances in which it has been presented to New York neurologists. The theory as here presented appears in *Mind*, Vols. xv and xvi. See also *Philosophical Review*, Vol. i., No. 6., JOURNAL OF NERVOUS AND MENTAL DISEASE. February 1893, and the volume that has just appeared "Pain Pleasure, and Æsthetics."

The quale-theory maintains that all states of pleasure and pain are included in a single series or continuum, passing from intense pleasure through agreeableness, indifference and disagreeableness, to extreme pain, and that all the several varieties of pleasure and of pain are but phases or aspects of one and the same mental element.

In the words of Mr. Marshall, "pleasure and pain are two states which are too disparate to be commonly known by any one word, but so inseparably connected that they must be mentioned in one breath." "The ground for this lies in the fact that the two appear to arise in consciousness as disparate parts of a continuum. One fades away into the other. Strong stimuli, if continuous, gradually fail in the production of pleasureableness, and as gradually become pain-producers. This community of character should seemingly lead us, at least, to hold that where we class the one there we must class the other also. We cannot, with propriety, say, for instance, that pleasure is to be classed with sensation, and then that pleasure is an emotion, holding sensation and emotion to be diverse in character."

To emphasize this essential unity of pleasure and pain phenomena, and to facilitate the "mentioning in one breath" of the two phases of this single state of consciousness, Mr. Marshall proposes the word *pleasure-pain*. Pleasure-pain is a simple element—nay, if we may use language so, even less than an element,—a quality, an attribute, whose various phases, in Mr. Marshall's words, must be considered, "as primary quales which affect *all* presentation however wide, however narrow, somewhat after the manner in which we grasp the notion of intensity as being common to all presentation." Pleasure-pain is the feeling-tone of German psychology, with this implied, if not distinctly emphasized, difference, that whereas feeling-tone embraces the agreeable and disagreeable elements in all sensation, but is discreetly silent as to the extremes of pleasure and pain, the word pleasure-pain emphasizes the opinion of the quale-theor-

ist that this single phenomenon or quale of the mental element includes among its phases both extremes. The theory requires that, under favorable conditions as to intensity, every sensation or mental state whatever may be presented in the extreme of pleasure, in the extreme of pain, and in any pleasure or pain intensity between these and indifference. It requires that quinine in proper intensity should give a pleasure equal in intensity to that of the exercise of the sexual function; that the odor of violets in sufficient intensity, should give a pain as decided and intense as the agony of angina pectoris. Further, it insists that no pain ever comes into consciousness except as a constituent part of some sensation or emotion; that we never experience pain except as an attribute or quality of a touch, or of a color, or of some other specific sensation-content.

The peculiarly psychological problem here, as Mr. Marshall insists, is one of classification. What is the proper basis of scientific classification in psychology, and what is the nature of the considerations that induce Mr. Marshall to decide that pleasures and pains cannot be classified with any other group of mental phenomena? In my opinion, we may distinguish Mr. Marshall's classification as psycho-physical rather than psychological. This distinction, which seems to me an important one to keep in mind, if we are to distinguish clearly between the data of introspection and the inferences of psycho-physical observation, is significant for every department of psychology. Without delaying to examine the requirements of a scientific classification, almost unconsciously in fact, psychology takes for granted that the proper basis of mental classification is to be found by reference to the different physical and physiological conditions that are supposed to determine the presence of the phenomena in consciousness. The traditional classification of all mental phenomena into states of cognition, feeling and volition, is at bottom a psycho-physical one; as the basis of this classification are taken certain differences in the relations subsisting between a

mind and the external physical world. The class of cognitive states, to which belong my perception of this room and my recognition of a face in the audience, is not determined in the last resort by an observable likeness among perceptions as mental phenomena, but by the fact that in perception, the mind and the external object are in a relation such that the mind knows the object. The class of volitions or states of willing is not determined by these states as such, but by the results which these states are observed to bring about in certain external objects, the muscles of the body. Further, the classification of sensations into five groups, or any number of groups, is a psycho-physiological one, whose basis is the mediation of a sensation group through the same sense organ. Blue and red are classed together as visual sensations, not so much because they seem alike as because we know that both are given to us by the eye. Sensations of heat and cold are classed as similars in a single group of temperature sensations, because we suppose both to be mediated through the same bodily structure, the skin, or because we observe that the same external object may be the excitant of both heat and cold sensations. It is in point, that psychology never ceased to consider all sensations arising from stimulation of the skin as one group, namely, the so-called sensations of feeling, until histology revealed disparate peripheral terminals.

Mental classification is given a purely psychological basis, only when the grouping of phenomena is determined by mental likeness and unlikeness as disclosed by introspection. A confusion of the psycho-physical and psychological standpoints has resulted in a want of clearness in the treatment of many problems of physiological psychology, and is directly responsible for a number of erroneous conclusions. It is an improper inference, for example, that two sensations are alike in mental quality, because we refer them to the same external stimulus or because they seem to come to us through the same sensory end-organs.

It is a similar confusion that lends force to the argument of the quale theory, and for that reason the separation of the two standpoints has been insisted upon in this paper. It seemed desirable, also, to raise some protest against the assumption by the psychologist of a tone of authority toward the neurologist, when the former's conclusions are the result of psycho-physical and not purely physiological observation. The field of physiological psychology is common to psychologist and physiologist on equal terms. The modern psychologist finds it necessary to have recourse to the most recent conceptions of the most scientific physiology. Physiological psychology is not distinguished from the older psychology by its psycho-physical standpoint. This is common to both old and modern psychology. The advance made by physiological psychology consists largely in the replacing of popular physiological and physical conceptions by others derived from exact scientific investigation.

Introspection reveals to us mental phenomena differing in degree of complexity. Complex mental states may be resolved into relatively simpler. As the ultimate of introspection analysis, we obtain the irreducible unit of consciousness, the mental element, which is generally called a sensation. This use of the term sensation is not to be confused with sensation as the mental resultant of the excitation of a peripheral sense-organ. The former is a psychological unit, the latter is a psycho-physical one. Whether a sensation, or mental element, can, in every case, be shown to be identical with sensation as the product of sensory stimulation, is one of the problems of physiological psychology.

When, therefore, Mr. Marshall insists that a pleasure or a pain is not to be classed as emotion, nor as intellect, nor as will, although pleasure-pain phases accompany all these states, he is saying, in effect, that these states are complexes, and that pleasure or pain is one of the component elements—an entirely unobjectionable statement of fact. But when, under the requirements of the quale-

doctrine, pleasure and pain are classed together as similar phenomena, some violence would seem to be done the facts of introspection. A pain seems as unlike a pleasure as a sound is unlike a color. That pleasure and pain must be "mentioned in one breath" is no disproof of their disparateness as conscious experiences. It is, at the most, an evidence of their intimate association, perhaps through the contrasts they present, as the mental antecedents of bodily movements, or through a similarity of relation to some other extraneous phenomena. The psycho-physical consideration, that pleasure passes gradually into pain with increasing intensities of the same external stimulus, does not prove mental identity. In words taken from a recent contribution of Dr. Nichols on this question, which will be considered below, "the same air wave may cause a sound, a cold creep, a feeling of jar, of tickle, of teeth on edge." Identity of the external stimulus does not prove even a mediation through the same sense-organ. Goldscheider has demonstrated the existence of separate terminal organs for heat and cold stimuli. The end-organ for heat will give a sensation of heat, and nothing else, no matter how stimulated; a cold spot touched with a hot object will give a sensation of cold, or no sensation at all. The grouping of heat and cold sensations under the name of temperature sensations has neither a psychological nor a physiological significance. Its import is a psycho-physical one, suggesting the possibility of the formation of a group of sensations, dissimilar for consciousness, where only basis of likeness is a common reference to the same external stimulus.

Passing from these considerations of a general nature to the specific arguments of the quale-theory, we find nothing that on nearer examination seems conclusive as to the impropriety of a classification of pleasure and pain with sensations in either sense of that term. We may, indeed, agree for purposes of argument that "none of the typical sensations have the character which we have found in pleasure-pain of being roused by the

widest range of psychic occurrences," that "on the contrary, each has a very special means of production by which it and it only is brought into consciousness;" that "pleasure and pain are primitive qualities which may accompany any psychosis"—and yet not be forced into accepting the quale-theory. If every sensation-content (as blue, or sweet) is accompanied invariably by some phase of pleasure-pain, it does not make pleasure-pain a quale or attribute of the sensation-content. It serves only to point out the complex nature of the phenomenon that we have been dealing with. The term sensation, whether with propriety or not will not be considered here, has been used to designate a complex of a sensation-element (such as hot, touch, blue, etc.), and a pleasure or pain element. That a pleasure or pain element accompanies invariably other specific sensation elements is a fact needing explanation, but presenting no very considerable psychological or physiological difficulties. But the facts as well as the argument may be questioned. It is doubtful if the best trained observer can discover introspectively that every sensation is accompanied by either pleasure or pain, or may be accompanied by both. Is quinine ever pleasing to the taste, or the color blue, as an isolated element, painful?

Nor is it a sufficiently conclusive demonstration of the non-sensational character of pleasure and pain that "under continuation of conditions, sensations do not habitually change from one form to another, as pleasure fades into pain." A proper caution in avoiding an overstatement of the facts of observation admits of no wider generalization than that some pleasures often fade into pain under continuation of physical conditions. Further, the inferences drawn from the facts are questionable. Even though certain physical stimuli of constant intensity may arouse a pleasure that under prolonged application of the stimulus fades off into pain, still no demonstration is afforded thereby that the peripheral physiological conditions have remained the same. The physiological stimulus has been ignored as

a source of sensation distinct from the physical stimulus. The sensation of muscular fatigue is, perhaps, not the mental correlate of an expenditure of energy in the motor cells of the cerebral cortex, but the resultant of an afferent sensory impulse peripherally excited by the accumulated products of contraction. Is it not a doubtful assumption that the nervous impulse travelling up the optic nerve as the result of prolonged stimulation of the retina by an ether wave of constant length and amplitude remains also constant; and, even if the sensory area of the cortex should continue to receive a constant afferent impulse, has it been demonstrated that there may not be added little by little to the central excitation, directly and reflexly excited elements which eventually change the feeling-tone from agreeableness to disagreeableness?

Equally inconclusive is also the observation that "an increase of the intensity of a stimulus often at first increases a pleasure, then decreases it, then produces an increasing painfulness: a series of which we find no counterpart in sensational experience." This relation between pleasure-pain and the intensity of the stimulus is to be observed with only a most limited number of stimuli; and the relation is not unique, for almost the exact counterpart is met with in the heat and cold series of sensations as related to the intensity of the temperature stimulus.

It is true enough that "sensations are connected with the action of distinctive organs acting in relation to the environment" and that "nothing else than a preconception of the sensational nature of pleasure-pain can lead one on the evidence thus far obtained to a decided opinion in favor of special pleasure-pain organs." Physiology does not suggest a pleasure-pain organ, but Goldscheider, Edinger and other investigators have reported the discovery of an organ of pain. Though we have had no suggestion as yet of an organ of pleasure, yet it is to be remembered that it is not many years since physiology, then in its infancy, prattled of the tongue as the

sense organ for taste, and of the skin as the sense organ for feeling, including temperature, touch, and pain. It is only the most recent research that points to disparate end-organs for sweet, for sour, for bitter, for heat, for cold, for touch. The discovery of a specialized sensory nerve of pleasure with a localized cerebral center, unlooked for as it is, would not be out of line with the discoveries of the past few years.

A conservative opinion based primarily upon the results of mental analysis, but having due regard to physiological evidence of a general nature, would seem justified in maintaining the following propositions:

1. Pain is presented in consciousness with the distinctness, the definiteness, the vividness, and the isolation that are supposed to characterize all sensations. I need not rehearse the list of psychologists, among the number many modified quale-theorists, that give support to the theory of the sensational character of pain. The results of physiological experimentation and the facts of pathology seem to support it. The phenomena of analgesia, which resist all explanation on the quale basis, have not been even considered, much less disposed of by Mr. Marshall in the following inadequate summary. "The capacity to experience one form of sensation in a part of the body may be cut off together with pain without cutting off in the same parts the capacity to experience other sensations (*e. g.*, those of heat) with their capacity for pain."

*The symptoms of syringomyelia, the action of cocaine and other anæsthetics, the phenomena of hypnotism, all present cases of the absence of pain without an entire loss of any other form of sensation—an impossible condition on the quale hypothesis. An interesting case in point was that of a student at the University of Pennsylvania, who was partially susceptible to hypnotic suggestion. His muscular system was entirely under the operator's control, but his sensory system not at all—with the single exception of pain. If told he would not feel the prick of a needle, he would nevertheless be able to do so, and could locate the part touched accurately, but he felt no pain even though the needle were thrust deeply through the skin. This observation was made by Professor Fullerton and myself independently and was verified in a number of trials. It would seem to demonstrate the independence of pain as a conscious content and to suggest a closer connection between motor and pain phenomena than between the former and sensations proper.

2. Pleasure is a mental phenomenon as distinct from pain as heat is from cold, or a sound from a color. The clearness and vividness and simplicity of sensation is not so marked in pleasures as in pains. Neither the complex nor simple character of pleasure can be readily demonstrated.

3. It may with reservations be maintained that agreeableness and disagreeableness accompany every mental state ; but these are given in consciousness not as phases of a dependent quale or attribute, but as simultaneously presented elements.

This conservative summary of the results of the mental analysis of pleasure and pain phenomena might serve as the point of departure for a number of divergent speculations as to the physical basis of pleasure and pain. It is proposed in the second part of this paper to outline briefly two hypotheses with which this summary is in substantial accord, and to contrast these with the account of the accompanying physiological processes given us from the standpoint of the quale doctrine. The first of these is the recent contribution of Professor Münsterberg on "Agreeableness and Disagreeableness."⁴ From the results of certain experiments made only upon himself, and therefore, to be accepted as yet tentatively, Münsterberg finds evidence that all pleasurable states of consciousness are accompanied by bodily movements of extension, and all painful states by movements of flexion. These movements may be very slight and need not be referred to the extremities only, although his own experiments were confined to movements of the upper limb. Münsterberg's conclusion is that the feeling of agreeableness is the mental accompaniment of reflexly produced movements of extension, and the feeling of disagreeableness, of reflexly produced movements of flexion. A stimulus, such as a very hot object, through the medium of an afferent nerve impulse, excites certain areas of the central nervous sys-

⁴ *Beiträge zur experimentellen Psychologie.* Heft 4. Lust und Unlust.

tem concomitant with which is a sensation of heat; the central excitation either in the cortex or in centres lower down, reflexly produces innervation of the musculature involved in flexion, which in turn serves as a stimulus for a secondary afferent impulse, producing a cortical excitation whose mental accompaniment are sensations of movement. These sensations of movement are the feeling of disagreeableness. Analogously, the sensations of reflexly excited movements of extension are the feeling of agreeableness. Flexion and extension are not caused by the disagreeable or agreeable element, but the reflexly produced flexions and extensions are the conditions of those conscious processes which we call agreeableness and disagreeableness. The most common objection to this theory, that it makes extension pleasing, and flexion painful, is disposed of by pointing out the essential psychological difference between the sensational product of the movement and the perception of the movement. The movement, as a conscious content, is not necessarily either pleasing or painful. This is a definitely localized perception and is itself dependent upon the same conditions, as a color or a sound, for its feeling tone of agreeableness and disagreeableness. These conditions are to be found in the intensity and duration of the primary ingoing impulse. "The Ritter-Rollett discovery, which in an unexpectedly extended form, has recently been firmly established by Osswald, demonstrated that from the same motor nerve root, electrical, chemical, mechanical and thermal stimuli may, according to the intensity and duration of the stimulation, produce movements of either flexion or extension. This is in harmony with the physiological observation, that even when the original motor impulse passes from the nerve centre there may be produced peripheral flexion or extension according to the intensity, duration and extent of the central excitation. When we further consider that the central motor impulse is normally the effect of centripetal stimulation, we may fairly assume that the sense-stimulus, according to intensity, extensity

and duration, will excite in the central substance, the motor-impulse toward flexion or extension. The stimulus which reflexly excites extension, with moderate strength and short duration, will perhaps by greater intensity or longer duration, produce flexion." ⁵ In Münsterberg's opinion, this explanation is in harmony with all the evidence of biology, physiology and psychology.

This explanation, however, is not to be taken as applying to pleasure and pain proper. Pleasure of sex (*Wollust*) and pain (*Schmerz*) are not the extremes of agreeableness and disagreeableness (*Lust* and *Unlust*), but are sensation-contents, which regularly arouse strong agreeable and disagreeable feelings. "Even if the explanation of pain and related sensations as due to peculiar trophic nerve processes or to specific nerves of feeling, is correct, still nothing is advanced, thereby, toward an explanation of the feelings of agreeableness and disagreeableness." That pain is a disagreeable sensation is a fact requiring explanation, which is to be found, not by reference to the pain-content as such, but to the reflexly excited sensations of flexion. Hence the difficulty of experimenting on this feeling in the laboratory, for in Münsterberg's words, "the sensation of pain awakens no disagreeableness as long as we know that the harmful stimulus is only produced so as to call forth this feeling as an object of study."

The physiological basis of pleasure and pain has recently been considered by another psychologist,⁶ and a biological explanation attempted of the distribution of supposed nerves of pleasure and pain. Dr. Nichols' argument may be outlined as follows: "Pain is as disparate a phenomenon from pleasure as is the color blue. In the pain of the prick of a pin there is no confusion with nor passing over into pleasure. This fact of introspection is emphasized by such phenomena as floating pains, which we cannot precisely attach to some other

⁵ Freely translated.

⁶ On the Origin of Pleasure and Pain. By Herbert Nichols, *Philosophical Review*. Vol. I, Nos. 3 and 4.

sensation, as its quale, nor locate precisely. Further, pain may become so dominant as to usurp all other mental content; and, finally, pain has a slower rate of conduction than the sensation-content. Goldscheider has also demonstrated separate paths of conduction through the spinal cord, and has isolated specific pain nerves. These pain fibres intermingle, as shown by Goldscheider, with those of pressure, of heat, and of cold, and may be supposed to be joined also with those of taste, smell, sound and sight. Biologically, the distribution of pain nerves is intelligible, because we find them in those places on the body where pain, as a warning against dangerous contact, would be most serviceable.

"That no single nerve in the body will respond to pleasure, and to pleasure only, leaves the assumption of the sensational nature of pleasure without physiological demonstration. The uncertain and associative aspect of all pleasures, even those most constant in response to normal stimulation, those of eating and of sex, is quite foreign to ordinary sensation and renders it difficult for us to determine whether they are such. But we notice a distinct relation between the bodily distributions of pleasures and their functions *i. e.*, to prompt to certain actions, as was found between pains and their function as warnings. The functions of sex are the most requisite, yet the most precarious in animal life. The destiny of the race is staked upon a single act performed with great relative infrequency and difficulty. The incitement thereto should be the more unerring and sufficient. Accordingly, the pleasures of sex above all others are most instinctive and most pronounced in intensity, in certainty, and in location. Eating is the next most vital of the sensual functions and the pleasures of eating are next in prominence. Its sensations are located just where they would be most aptly stimulated, and most surely prompt to the needed conduct. If pleasure nerves are the basis of its pleasures, they are placed just where for best service they ought to be placed. And here, as with sex, we find the strength of the pleasures propor-

tional to the vital importance of their functions. The theory of properly distributed specific nerves of pleasure explains all this with a clearness that the rival quale-theory gives no suggestion of."

In my opinion, psychology would find no difficulty in satisfactorily explaining all pleasure and pain phenomena on the basis of specialized nerves of pleasure and of pain with localized cerebral centers for each. Even the simultaneity of pleasure and pain with so many sensations is readily explained as due to association fibres between these centers and all other specific sensation centres. In the phenomena of colored audition, we have an exactly analogous persistent association between colors and sounds. There is needed some explanation of the relative infrequency of the latter association and the universality of the former. This would seem to be given by reference to the fundamental importance of pleasures and pains as stimulants to action. Whether the feeling-tone of disagreeableness or agreeableness is to be accounted for as a weak sensation of specific pleasure and pain, or as a reflexly excited sensation of movement is a question that need not here be discussed. The theories of Münsterberg and Nichols have been presented for the purpose of showing that psychology has no particular objections to offer to the physiological hypothesis of specialized nerves of pain.

In striking contrast with the intelligibility of this hypothesis are the obscurities of the physiological interpretation of the quale theory. I present Mr. Marshall's explanation of the physical basis of pleasure and pain in his own words: "Upon a superficial examination it seems natural to connect the pleasure of exercise in an organ with the efficiency of that organ, *i. e.*, with its ability to function vigorously. Pain, as involved in exercise, on the other hand, appears as similarly connected with an inefficiency in the organ—an inability to function normally in relation to the stimulus received. It

¹ The account is given in Dr. Nichols' words, with some changes made necessary for condensation.

will presently appear also, I think, that this position, while requiring explanation and definition of terms to bring the different pleasure-pain facts into relation, on the whole, does not present any formidable difficulties, so long as we understand it as the interpretation of pleasure and pain in connection with the action of the specific organ which is giving us the content consciousness. With a wider view of what an organ means than Aristotle, the theory may read thus: "*The activity of the organ of any content, if efficient, is pleasurable, if inefficient, painful.*" We call an action inefficient when the outcome of a certain stimulus is less than the outcome we looked for as the result of our experience. As our experience varies, so will vary our notion of inefficiency. All pleasure-pain phenomena are determined by the action in the organ concomitant of the conscious state, as related to the nutritive conditions of the organ at the time of the action. If, in any given case, the conditions as to action and nutrition remain unaltered, the pain in the main tends to increase. If the state be one of pleasure, however, the stability of the same conditions brings about decrease of the pleasure. This points to something *used up* in the case of pleasure, and the fact that there is *something to use up*, points to storage.

"Pleasure is experienced whenever the physical action which determines the content involves the use of stored force—the resolution of potential into actual energy; or, in other words, whenever the energy involved in the reaction to the stimulus is greater in amount than the energy of the stimulus. Pain is experienced whenever the physical action which determines the content is so related to the supply of nutriment that the energy involved in the reaction to the stimulus is less in amount than the energy of the stimulus. Pleasure and pain are primitive qualities of psychic states, which are determined by the relation between activity and capacity in the organs, the activities of which are concomitants of the psychosis."

I do not propose to criticise the details of this exposi-

tion of the physical basis of pleasure and pain. I confess that I do not understand it. I am able to form no clear conception as to what an organ of the content is nor what kind of thing this energy may be that is shunted into the organ from the external stimulus and there met by some other energy which has been stored up as the result of the processes of nutrition.

All phenomena of the body, not alone pleasure-pain phenomena, are dependent upon the use of force, and in a certain sense are phenomena of stored force. Nor has the form that the hypothesis took at the recent meeting of the American Psychological Association, that "pleasure is the use of *surplus* stored force," helped the explanation. We must know *surplus over what*—the answer is, over what is necessary for efficient action, and efficient action is what experience would lead us to expect. Can we designate as scientific an hypothesis that holds it possible for a physiological process to fluctuate with variations of our expectation?

Passing details by, may not the most daring exponent of cerebral localization stand aghast at a theory that assumes pleasure and pain to be the peculiar mental correspondents of nutritive changes in the organ of the content? We are not told what the organ of the content is, but without doubt it is to be thought of as a chain or collection of ganglion-cells. In view of the fact, that we only with difficulty locate the areas for sensation groups in the cortex, that we cannot point to the location of the cells that constitute the organ of the content of any specific sensation, is it not traveling too far along the road of hypothesis to select a particular process in the ganglion-cell, as a physical basis of what Mr. Marshall considers an element of a sensation? Is not every form of consciousness dependent upon the maintenance of certain metabolic conditions in the cells that are the constituent parts of the reflex-arc of each reaction? The cell reveals other processes than those of metabolism; that just this one process of the ganglion-cell has been singled out as the physical basis of pleasure

and pain, is due to certain considerations of a general nature; *i. e.*, the relation between muscular action and pleasure and pain states. This is not the method of scientific physiology. In reverse fashion, modern physiology and biology would explain the functioning of the entire organism by reference to the functions of its constituent elements. We must guard especially against this error that is so manifest throughout Mr. Marshall's exposition, of supposing that conceptions derived from an examination of the gross processes of the body or parts of the body, may be transferred for purposes of explanation to the processes of specialized cells. Mr. Marshall has shown the inconclusiveness and unscientific character of all earlier physiological interpretations of pleasure and pain on the basis of the quale doctrine. His own hypothesis is no exception to the record of failure that begins with Aristotle.

In summing up the argument of this paper, the following points may be emphasized as bearing directly upon related problems of neurology:

1. The quale-theory is open to serious objections on psychological grounds.

2. On the basis of the quale-theory, no satisfactory physiological explanation of pleasure and pain is possible—at least in the present condition of the science of physiology. Neither Marshall nor any of his predecessors has succeeded in presenting aught else than some general observations of the relations between certain gross physiological phenomena and pleasure and pain states.

3. The existence of pain centres, tracts and peripheral nerves can be brought into accord with the results of introspective psychological analysis.

4. The existence of pleasure centres, tracts and nerves, a more remote physiological hypothesis, could be interpreted with no considerable violence to current psychological conceptions.

In conclusion, the audience may be reminded that it was not the purpose of this paper to make out the strong-

est possible case against the quale-theory. Had it been, the most conclusive evidence would have been found in an examination of clinical data and in the results of recent experimental and pathological research. But the neurologists present are doubtless more familiar with these facts and investigations than the present speaker, and are better qualified to determine their validity and significance.

A Case of Hyperidrosis.—Dr. Federico Zavaleta, of Buenos Aires, describes a case of general hyperidrosis occurring in a man of a lymphatic-nervous temperament whose circulatory, respiratory, and digestive systems were in excellent condition. The hyperidrosis had lasted for twenty years and the least mental or physical exertion necessitated him to cease his work entirely. The perspiration is cold, skin white and anæmic, has a sensation of itching, pains at the occiput and in extremities, palpitation, an anxious feeling and highly emotional. Not being able to ascribe the state to any organic change, the author after differentiating between normal perspiration and hyperidrosis, due to changes in the nervous system, draws the following conclusions:

1. That the affection is of cerebral origin with profound functional nervous symptoms, of which the most important is the exaggerated secretion from the skin denominated hyperidrosis.

2. That in view of the inveteracy of the local and general symptoms and the serious consequences which have attended any exertion on his part, the patient is not in a physiological condition and hence unable to apply himself to his daily work. The patient was recommended as deserving of a pension on account of his previous services to the State.

Anales Del Departamento Nacional De Higiene, Buenos Aires. September, 1893.

W. C. K.

POLIO-ENCEPHALITIS SUPERIOR ACUTA;
WITH REPORT OF A CASE.¹

By SAMUEL WOLFE, A.M., M.D.,

Clinical Professor of Nervous Diseases in the Medico-Chirurgical College,
Philadelphia.

B. C. D.; male; æt. 39; married; driver of milk wagon. While following his usual occupation during September, October and November, he had occasional attacks of vertigo, occurring about once a week, so severe that he was obliged to grasp a support to keep from falling. During the same period of time he also had sensations mainly in the limbs, which he describes as of an itching character, and also some feeling of numbness. In the early part of December, the attacks of vertigo became much increased in frequency, so that he had several daily, and his wife says that at this time she also noticed that he squinted, the left eye she thinks being turned inward. On December 6th, he called on his family physician, Dr. Snively, complaining some of diplopia, giddiness, frontal headache, and staggering gait. He still continued to work, and on December 13th called again on Dr. Snively, when it was noticed that the eyes were immobile and fixed in the mid position, the facial muscles had lost power and tone, and the speech was much altered. He, however, still persisted in going over his milk route daily, until, on the 15th, when in one of his vertiginous attacks, he fell out of the wagon. He then went to bed, and Dr. Snively was called next day, finding a temperature reaching 100.5; pulse increased in frequency to about 100; considerable somnolence, and a little mental disturbance, which was thought to amount to a few hallucinations. There was no activity of the bowels, and a small cathartic dose of aloin ($\frac{1}{4}$ gr.) was administered, which purged severely and continuously for an inordinate length of time. After a few days of slight fever there was free sweating, and the pulse and temperature became normal. There was about this time, some sweating of the left side of the face while the right was dry. A considerable degree of cutaneous anæsthesia of the extremities, the legs and

¹ Read before the Philadelphia Neurological Society, January 22, 1894.

forearms especially, was made out. I was called to see the patient on the 23d of December, seventeen days after he had been first seen by Dr. Snively.

I found a partial ptosis, which would probably have been complete but for the paralysis of the antagonists to the levatores, the orbicularis palpebrarum; entire immobility of the eye-ball in every direction, the eye being fixed in the mid-position, and slightly bulging; loss of power to accommodate; great dilatation of the pupil, entirely irresponsive to light (a lighted candle could be brought almost in contact with the eye, without producing the least contraction). All these symptoms were perfectly bilateral. There was also complete bilateral facial paralysis, so that he could not raise his eyebrows, close his eyes, could not blow or whistle. He found eating and drinking difficult on account of the tendency for the substances to escape through the toneless lips. The speech was nasal, muffled, and guttural, partly from paralysis of the velum palati (the uvula deviating very slightly to the left) and largely from paralysis of the levatores alæ nasi, which was shown when he pushed up the nasal cartilages during phonation, his speech then being markedly more distinct.

Smell had been lost according to his statement, during the first few days he was in bed, but had already been recovered. Taste also had been completely lost, but now also had partially recovered. I found on testing that on the left side of the tongue, taste was normal on the anterior part, and on the posterior part, paræsthetic. He would mistake salt for sugar, or vinegar for salt, and so on. On the right half of the tongue the sense of taste was wholly absent.

He had a feeling of numbness in both arms and legs combined with a "pins and needles" sensation. I found decided but not complete anæsthesia and analgesia on the outside and back of right leg, and on the inside of left, as well as on the ulnar and posterior surfaces of both forearms. There was great pain on pressure over the fourth lumbar spine, and also some spontaneous pain in this region.

The plantar, the cremasteric and the abdominal reflexes were all diminished, especially the plantar on the left side. The knee jerks were absent, even on reinforcement. There were spontaneous movements on holding out the limbs and a coarse tremor of all four extremities on voluntary motion. He sways on standing

with eyes open, very much more with eyes closed. His gait is very irregular, and ataxic, especially marked on turning in his course. No marked loss of power could be determined in any muscle, or set of muscles, in the extremities.

He has never had syphilis, and never used alcohol; he chews tobacco excessively and smokes some. He has an aunt living who is paralytic, and another aunt and an uncle have died of paralytic affections.

My friend, Dr. J. A. Cramp, was asked to examine the eye grounds, and to test the visual fields. He reports as follows:

My dear Dr. Wolfe:

I examined Mr. Daniels as you requested. External examination showed complete paralysis of all the ocular muscles (bilateral), the pupil was dilated and would not respond to light. Accommodation was paralyzed. There was ptosis principally on left side; the patient's distance vision was fair, being $\frac{3}{4}$; no contraction of the field of vision. The ophthalmoscope showed no fresh zones of inflammation in neither the retina, choroid, nor nerve; although the nerve borders above and below were slightly obscured by connective tissue; this condition I would state, we often find in hypermetropia, which defect the patient had to the extent of about two dioptries.

On the 3d of January, eleven days after the above condition was found, I found that the pupil responded readily to light impressions and was not greatly dilated. Power of accommodation had returned so that he could read. The ptosis had largely disappeared. Taste had fully returned, and the anæsthesia of the legs had disappeared, but persisted in the arms. His gait was markedly less ataxic. The other symptoms were unchanged, except that a very slight improvement in his speech may be noted.

On the 19th of January, twenty-seven days after my first examination, I found the ptosis entirely gone, the pupils normal in size and reaction, a little spasmodic lateral movement of the eyes, usually of one alone, on attempting to follow an object. He could now raise his eyebrows, shut his eyes, blow, whistle, retain food within his lips, and could give some facial expression to his emotions, although in this respect, power was not proportionate to that of voluntary motion of the facial

muscles. The anæsthesia has disappeared, but there is an irregular paræsthesia of trunk, which he defines as a feeling of a hot cloth, lying on a patch of skin, now on the abdomen, now on the chest, and again on the back, but not constantly present in any situation.

He now stands well with eyes open or closed, but still is slightly ataxic in gait. There is slight inco-ordination of left arm, shown on touching his nose, and a coarse tremor of all four extremities. The left knee jerk is very slightly present, and develops into an almost normal one, on reinforcement. The right is still altogether absent.

On the 22d of January, when seen for the last time before the conclusion of this paper, he could move his eyes inward, upward, and downward to a considerable extent, but outward movement was still entirely absent. He could now smile broadly, and walk almost without any noticeable inco-ordination, with the exception of a halt before starting, in turning half way round. The sixth nerve seems the last to recover, and here there will probably remain some residual paralysis.

The treatment pursued in the case from the time I saw him, was potass iodid gr. \times t.d., until about the third week, when $\frac{1}{16}$ gr. doses of strychnia sulph. were given in addition, three times a day. He was kept in bed, and all mental excitement and exercise were prohibited.

The chief, if not the exclusive lesion in this case, I believe was in the nuclei of the 3d, 4th, 6th, and 7th cranial nerves. The paræsthesia of the extremities, which existed for three months before the cranial nerve symptoms appeared, and the occasional attacks of vertigo that appeared during the same time, point to the possibility of some vague degenerative disease in its earlier stages, but the anæsthesia and analgesia with the ataxia, which appeared in conjunction with the major symptoms of the main attack seem to me to point to involvement of the tegmentum, or probably the thalamus. This involvement seems to me to be indirect, most likely due to circulatory or nutritional disturbance of some kind, while the direct lesion was inflammatory in nature, and in-

volved the motor cells of the nuclei of the nerves already mentioned, just as an anterior polio-myelitis has the inflammatory action limited to the motor cells of the anterior cornua. Spasm and ataxia manifested in the gait, it should be remembered, were symptoms which entered constantly into the clinical picture of polio-encephalitis superior acuta, as observed by Wernicke, and their association in the present case with a history of paræsthesia, affecting the same parts for some time previous to their development, might be looked on as purely incidental. The topographical relations of the nuclei of the 3d, 4th, 6th, and 7th nerves to the tegmentum, are such that a focal lesion of the former, might be expected to affect the latter in such a way as to produce indirect symptoms pertaining to sensory conduction, while the crusta and consequently the pyramidal tract might easily escape. Again, a focus of inflammation involving the nuclei, would most naturally involve also the contiguous parts, and thus the symptoms might be direct. The order of recovery, however, the sensory phenomena being the first to disappear, argues in favor of the former view.

As to the nature of the lesion, the view that it was inflammatory is tenable on the ground of gradual onset, slight rise in temperature and acceleration of pulse, and the occurrence during the prevalence of an epidemic of influenza. I need not dwell upon what has been a matter of such universal observation, the tendency of the toxine of *la grippe* to produce lesions of both the peripheral and central parts of the nervous system. That some such agency is active in the production of acute anterior polio-myelitis, and probably of some other acute system diseases of the nervous tissues is a theory which is undoubtedly gaining in favor from year to year.

The transient loss of smell, and the somewhat more persistent loss of taste, are not very easily explained. It may be worth while to consider that the uncinate gyrus, the hippocampal gyrus and the anterior commissure and cornu ammonis are all parts whose topo-

graphical relations to the nuceli certainly affected, are such that they sustained more or less liability of being indirectly, if not directly, affected. The transient nature of these symptoms, too, was such that, it may be assumed that structures of a different nature, as the cortical cells, were affected, or that the symptoms were of an indirect nature. In regard to the affection of taste, the view of Gowers, that all the taste fibres arise from the nucleus of the fifth, must be borne in mind. The absence of all other sensory and motor symptoms connected with this nerve, however, militates strongly against this view of the nature of the affection. Somewhat more plausible argument may be made in favor of an implication of the fibres of the chorda tympani, through nutritive changes, brought about by their close relation to the facial fibres, proper. That these fibres (the facial) underwent trophic changes of a decided character is, of course, simply in accordance with one of the facts most thoroughly known, in the pathology of nerve degeneration. That such intense changes might exercise a deleterious effect upon other very closely associated structures is by no means an altogether unwarrantable assumption. I, however, incline to believe that in the affections of both taste and smell the origin was cortical rather than nuclear or peripheral.

The diplegia facialis is a symptom, which, heretofore, has not been observed in this disease. When we consider the close relations of the nucleus of the 6th and 7th nerves, there being most probably communicating fibres between the two, and the still closer relation of the root fibres of the facial to the nucleus of the 6th, it seems rather remarkable that it should be the rule that the facial escapes. The probable origin of the fibres which supply the levator palpebræ, from the nucleus of the 7th establishes a still further close relation between the oculo-motor nerves and the facial. It will be seen, then, that the present case is, in all respects, one of the most completely typical yet observed. The involvement of the three branches of the facial, since we are able posi-

tively to exclude a peripheral lesion, at once places this focus in the nucleus. The complete and persistent loss of power of expression, also, fixes the lesion below the optic thalamus, unless, indeed, we may consider that organ implicated. At all events, the cortex and the fibres of the corona radiata, as well as the intra-capsular course of the tract can positively be excluded.

The completeness of the ophthalmoplegia at once removes the disease from the chronic type which has been so well studied by Von Graefe. In this the pupil constrictor and the ciliary muscle are not involved. Besides this we have a series of concomitant phenomena, including a specific poison, acting as a cause which place the disease in the acute class. The order of recovery is interesting, since those symptoms disappear first, that never appear at all in the chronic variety, indicating that a less intense cause is sufficient to affect the extrinsic muscular apparatus, than would suffice for the intrinsic.

The tendency to recovery in this case, is also peculiar, since the type described by Wernicke is almost invariably fatal. There is, however, in this, a still further analogy to the prototype, acute anterior poliomyelitis, which again counts in establishing this case as particularly typical. Should there remain, as I think there will, some residual paralysis, this observation will be still more strongly confirmed.

The study of this disease has been so much limited, that its existence as a pathological entity is doubted by many neurologists. What observation there has been is probably confined entirely to Germany. Instances, therefore, are rare. The present case, it would seem, should go far in establishing its rank as an independent disease. The chronic progressive variety occurs more often, and its existence and identity are well established.

To summarize and conclude: I have in this paper reported a case of inflammation of the motor cells of the nuclei of the 3d, 4th, 6th and 7th cranial nerves, of infectious origin, in which the initial symptoms were diplo-

pia, strabismus and vertigo; the established symptoms directly due to the lesion, external ophthalmoplegia, cycloplegia, iridoplegia (mydriasis) and ptosis with diplegia facialis giving rise to great alterations in speech; and with loss of smell and taste, inco-ordination, and sensory disturbances as indirect symptoms; the entire complement of symptoms being established in the course of less than three weeks, after a duration of about ten days progressive recovery; classified as polio-encephalitis superior acuta, presenting probably the most completely typical case yet recorded.

1624 DIAMOND STREET, PHILADELPHIA.

A Case of Acute Myelitis.—(*Wiener Med. Wochenschrift*, No. 45, 1893). Dr. Isidor Mehrer reports the following interesting case:

I. K., aged 51, a strong hearty man, became cooled rapidly after being overheated.

He was suddenly seized with a feeling of chilliness and sank to the ground, but without losing consciousness.

Examination showed that complete paralysis of all four extremities was present as well as of the rectum and bladder. Anæsthesia was present, but not so complete.

Pulse regular and soft, 120 to the minute. Temperature 38.5°. He complained of a feeling of coldness and numbness in the extremities, but no pain in the back.

The condition remained about the same for two days.

On the third day the paralysis extended to the muscles of respiration and death soon followed.

This case gave no history of exhaustion from overwork or injury of any kind and the only cause to be found was the chilling.

W. F. R.

TWO CASES OF SYRINGOMYELIA; ONE OF UNILATERAL TYPE.¹

From the Polyclinic Service of CHARLES K. MILLS, M.D.,
Philadelphia.

Reported by J. W. McConnell, M.D.

CASE I.—R. A. R., white, male, aged 52 years, an iron roller, has a good family history. He denies venereal taint, does not use tobacco and indulges but little in alcoholic stimulants. His physical history is good up to the time of commencement of the present trouble, having had no illness or condition requiring surgical attention, excepting a very painful whitlow with which he suffered about twenty years ago. The patient has been an iron worker since he was twelve years old and is a hard working man.

About twenty years ago, he was troubled with pains, shooting in character, occurring in the right shoulder or arm or hand separately, and at times involving the different portions of the upper extremity simultaneously. He never had shooting pains elsewhere and for many years has not been conscious of pain of any kind. There is no history of diplopia, vesical or rectal trouble, nor of ataxia.

Nine years ago (1885), his attention was drawn to a peculiarity in his sensibility to heat and pain. While at his work he leaned against a hot steam pipe and burned the right side of his back severely without being conscious of it, and he was unaware of anything having happened until two weeks afterward, when the bloody bedclothing caused him to wonder as to the source of the blood. Again last winter (1892), he burned himself close to the seat of the first burn by resting against a hot furnace plate. Of this injury he was ignorant until his wife, seeing the ulceration, inquired the cause.

Both burns were very slow in healing, and at the present time a mass of proud flesh marks the seat of the injuries.

The present condition of the patient is as follows: He is a well nourished man, whose back just below the angle of the right scapula, is marked with two large scars,

¹ Read before the Philadelphia Neurological Society, Jan. 22, 1894.

each about four inches long and two inches wide, the results of the previously mentioned burns. He complains of no pain, no loss of power, no feeling of ill health, nothing but a loss of certain sensibilities, which loss makes his employment a dangerous one.

On the right side of his body, commencing just under the jaw of that side, is noticed a peculiarity in the sensibility to heat. This peculiarity is not a complete loss of thermo-sensibility, except in certain localities. In portions of the back, right arm and leg, is complete loss, in others a retardation of heat sense, in a third the sensibility to heat and cold seems to be confused.

Over these same areas is also a change in the sensibility to pain. Here, again, we have not a complete loss, but rather a retardation in the conduction of painful sensations. Sticking a needle into the right side of the body does not cause pain, but if the needle is allowed to remain in the flesh a few seconds the patient can differentiate between sharp and dull.

Tactile sense does not seem to be impaired. He responds almost immediately to the touch of the finger. Muscular sense is also apparently normal.

There is no atrophy or loss of power in the affected side. Electrical examination gives negative results. Knee jerk and muscle jerk are decidedly plus on both sides.

CASE II.—S. C. S., white, male, aged 65 years, a farmer, came to the Polyclinic Hospital Clinic for Nervous Diseases. His family and personal history are negative in relation to any cause for the present trouble, and until seven years ago he had been free from serious sickness of any character.

In 1886, the patient noticed for the first time some weakness of the right lower extremity, commencing, as he says, in the foot and gradually involving the whole limb to the hip. In consequence of this weakness, he was required to use a cane to assist him in locomotion, and with that aid he could move about with but little difficulty. There was no pain accompanying this weakness at first, but in 1890 the patient became conscious of some uneasiness and stiffness in the limb, and later on had positive though slight pain in the lumbar region.

In 1889, the right knee became swollen, and the joint has gradually changed in shape and position. At this

time it was noticed that the muscles above the knee joint were wasting somewhat.

There is no history of urinary or intestinal trouble until 1891, when he commenced to have difficulty in passing his urine. No pain, but the bladder seemed to have lost in muscular tone, and the expulsive force was less than normal.

His condition January 25, 1893, was as follows: Intelligent, well-nourished man, with well-formed trunk and arms, but a peculiar deformity of the right leg. About the knee of this side is much wasting of muscular tissue, and the joint is so changed in shape that the limb presents the appearance of an arc of a circle with the convexity backward. When the patient walks he is able to bend the knee, but the weight of the body resting on that limb causes the arching or curving of the limb to be even more marked than when standing quietly on both legs.

The left limb is normal in appearance and presents no changes of any kind. Movements of the right foot are all impaired, but not totally lost. Those of the left seem to be preserved.

Flexion and extension of the right toes seem to be better preserved than any other movements. The muscles of the thigh, Iliacus, psoas, quadriceps, abductor, sartorius and glutei are partially paralyzed, as are also the gastrocnemius and soleus, while the anterior and posterior tibials and the peroneal group are almost completely so.

The movements of the right upper extremity are not impaired. Fibrillary tremors, however, are found here and also in the leg.

Reflexes in the right lower extremity are increased, but no change is found in those of the trunk upper extremity or opposite side. Foot clonus on the right side is marked and persistent. To electrical currents the muscles of the right side respond, but not so vigorously as those of the left.

Thermo-anæsthesia is noted from the fourth rib, on the right side, down the trunk and left leg, irregularly across the right shoulder and down the arm of that side. In certain localities, above the right nipple and just above the right groin, the loss of temperature sense is less marked.

The condition of the back is similar to the front.

The ability to differentiate between the sharp and

dull points of the compass is almost entirely lost over the areas of thermo-anæsthesia, and the loss seems to be more marked in those points where the thermo-anæsthesia is most decided.

Tactile sensibility is somewhat impaired, but by no means lost.

Trephining for Epilepsy.—Barber (*Brooklyn Med. Journal*, October, 1893).

Dr. Barber, after giving the results of treatment in four cases, concludes as follows:

First—I believe the results obtained where no tumor, thickening of cerebral coverings, cicatrices or cysts are found or depressed bone removed are due simply to the lessening of pressure upon the brain.

As the attacks have returned in all the cases which have come under my observation, I firmly believe the cause for the failures is that the brain rapidly loses the effect of the lessened pressure and is once again in the same condition as before the operation.

Second—In many cases where the results are contrary to all reasoning, I consider the failures due to the too much manipulation by the operator, disturbing or irritating the cerebral matter.

Third—Where the cause of the epilepsy is due to an injury the trephining should be done as soon as the diagnosis of epilepsy is made.

Fourth—One fact which is peculiarly striking in the cases reported, is that they were all operated upon at or about the same time—when trephining for epilepsy was the fad.

Whenever an epileptic gives a history of a neurotic inheritance, I do not think trephining is to be considered of any avail, even though the exciting cause be a traumatism.

J. C.

Forensic Medicine.

BY MATTHEW D. FIELD, M.D.

New York.

Minnesota Insane Legislation.

A SERIOUS complication has arisen in the State of Minnesota regarding the commitment of the insane, the laws of 1893 having been declared unconstitutional, after some five hundred patients had been committed.

The legal status of the insane is further complicated by the fact that the legislature in that State meets but once in two years, and no relief can be hoped for before the next session that convenes, January 1st, 1895. Fortunately, the old law was not repealed. A text of the law of 1893 is given below, together with the opinion of the Court and Attorney General :

State of Minnesota.—Enactment, 1893.

An Act to confirm the Location and Establishment of the Minnesota Hospitals for the Insane, to provide for Commitment thereto, the Management and Supervision thereof, and Licensing and Supervision of all other Hospitals for the insane.

Supervision.

SECTION 3. These hospitals shall be under the charge and supervision of five trustees, three of whom shall constitute a quorum for the transaction of business ; such trustees shall be appointed by the Governor, by and with the advice and consent of the Senate.

The term "insane" defined.

SEC. 16. The term "insane" as used in this act includes every species of insanity, but does not include idiocy or imbecility.

Grounds for commitment.

SEC. 17. No person shall be deprived of his liberty in this state by being committed to custody as insane,

unless his insanity be established in manner and forms a prescribed in this act, and his commitment to custody be recommended, either because (1) he has perpetrated acts dangerous to himself or to others, or to property; or, (2.) It is reasonably certain, by his threats or otherwise, that he has dangerous tendencies or uncontrollable propensities towards crime; or, (3.) He wanders about and is exposed to want of food or shelter, or to accidents; or (4.) He is ill-treated or neglected by relatives or friends; or, (5.) His disease is of such a nature, or in such a stage, as to require, for his recovery, care and treatment while under legal restraint.

Qualifications of the examining physicians.

SEC. 18. After the first day of January, A. D. 1894, it shall not be lawful for any physician to certify to the insanity of any person for the purpose of securing his commitment to custody, unless said physician be of reputable character, a graduate of some incorporated medical college, a permanent resident of the State, and shall have been in the actual practice of his profession for at least one year next preceding the making of such certificate, and shall at the time of making such certificate be registered as licensed by the State Board of Medical Examiners. The possession of such qualifications shall be certified to by the judge of probate of the county in which such examiner resides.

Superintendents, medical officers and relations not permitted to certify.

But it shall be unlawful for any examiner in lunacy to certify to the insanity of any person for the purpose of committing him to a hospital or institution devoted to the custody, care and treatment of the insane, of which said examiner is either the superintendent, proprietor, an officer or regular medical attendant, or when said examiner is a near relative of the alleged insane person.

Manner of examination, certification and commitment prescribed.

SEC. 19. Whenever the probate judge, or, in his absence, the court commissioner of any county, shall receive information in writing that there is an insane person in his county needing care and treatment (form "B"), the said judge or court commissioner shall, by an order in writing (form "C"), direct two examiners in

lunacy to examine the alleged insane person, and certify to him within one day after their respective examinations (form "D"), the result of such examination, with their recommendation as to the special action necessary to be taken in the case. If the examiners certify that the person so examined is not insane, the judge or court commissioner shall dismiss the case. If they disagree, he shall call other examiners, or take further testimony. But if they certify that he is insane, and a proper subject for commitment for any of the reasons specified in Section 17 of this act, said judge or court commissioner may, or may not, visit the alleged insane person, or require him to be brought into court, but he shall cause him to be fully informed of the proceedings being taken against him. He may, if he deem it advisable, take further testimony or call other examiners, and if the question of insanity is contested, he may, in his discretion, call a jury of six qualified electors, whose finding shall be conclusive. In either case, if satisfied that the person is insane, or the jury so find, and that the reason for his commitment is sufficient under the provisions of this act, he shall approve the certificate of the examiners and issue a duplicate order and warrant (form "E"), committing said person to the custody of the superintendent of the proper state hospital for the insane, or to the superintendent or keeper of any private licensed institution for the care of the insane, and shall place said order and warrant, together with a certified copy of the certificate of the examiners in lunacy, in the hands of the Sheriff, or some other suitable person to the hospital.

Female patients shall be protected during transportation.

In case said insane person is a female, she shall be accompanied, while being conveyed to the hospital, by her husband, brother or son, or by a woman designated by the judge of probate or court commissioner.

Questions to be answered in the medical certificate :

SEC. 20. Each certificate of insanity must contain, in addition to other information, answers to the following inquiries as far as they can be obtained :

Inquiries were made and answers obtained as follows :

1. What is the patient's name and age? Single, married or widowed? If children, how many? If a mother, age of youngest child?
2. Where was the patient born? Where was the

patient's father born? Where was the patient's mother born?

3. Where is his or her place of residence? (Legal settlement.)

4. What has been the patient's occupation? If a woman, husband's or father's occupation?

5. Is the patient a church member? If so, what church?

6. Is the patient educated? If so, to what extent?

7. Were the patient's parents or grandparents related, and if so, in what degree?

8. Is this the first attack? If not, when did others occur, and what were their duration? If sent to a hospital, state where, and result of treatment?

9. When were the first symptoms of this attack manifested, and in what way?

10. Does the disease appear to be increasing, decreasing or stationary?

15. Is there a disposition to filthy habits, destruction of clothing, furniture, etc.?

16. Has the patient's father or mother, or any relative on either side, been insane?

17. Did the patient manifest any peculiarities of temper, habits, disposition or pursuits before the accession of the disease; any predominant passions, religious impressions, etc.?

18. Was the patient, or were either of his parents, ever addicted to intemperance in any form, or the habitual use of any narcotic?

19. Has the patient been subject to any severe disease, to epilepsy, to convulsions in any form, or had any injury of the head?

20. Has any restraint or confinement been employed? If so, of what kind, and how long?

21. What is supposed to be the cause of the disease?

22. What treatment has been pursued for the relief of the patient? (Mention particulars and effects.)

Facts learned on personal examination, (Mention every appearance or condition of the patient bearing on the question of existing insanity.)

Recommendations: Give the special reasons for recommending commitment, according to Section 17. Name and address of family physician, if any?

Penalty for false certification.

SEC. 23. Whosoever for any corrupt consideration

or advantage to himself, or through malice, shall make, or join in or advise the making of any certificate aforesaid, or shall knowingly or wilfully make any false representations, for the purpose of causing any such certificate to be made, whereby any person is declared to be insane, and committed to, or held in, any institution for the custody, care and treatment of the insane, shall be deemed guilty of a felony.

The insane shall not be confined with criminals.

SEC. 24. No alleged insane person shall be arrested and committed to jail, unless he has committed some crime, or is dangerous or disorderly, or there are reasonable grounds to believe that he will do injury to himself or others, or to property, and when arrested and committed to jail for any of the reasons herein enumerated, it shall not be lawful to confine him in the same room with any charged with, or convicted of, any crime.

Provisions for those acquitted by reason of insanity.

SEC. 25. When any person indicted for any offense is, on trial, acquitted by the jury by reason of insanity, the jury in giving their verdict of not guilty, shall state that it was given for such cause; and thereupon, if the discharge or going at large of such insane person is considered by the court manifestly dangerous to the peace and safety of the community, the court may order him to be committed to any of the State hospitals for the insane for safe-keeping and treatment, or may order him to be committed to prison, or may give him into the care of his friends, if they shall give bonds with surety, to the satisfaction of the court, conditioned that he shall be well and securely kept. Otherwise he shall be discharged.

No indicted person shall be tried while insane.

SEC. 26. Whenever any district judge shall be informed by the affidavit of any reputable affiant, that any person indicted or held for hearing before the grand jury for any criminal offense, is in such state of idiocy, imbecility, lunacy or insanity, as to be incapable of understanding the proceedings or making his defense, said judge shall immediately proceed (whether it be term or vacation time) to determine the fact, either by testimony before himself, or by jury, in his discretion; and if it shall be found on such hearing that said defend-

ant is at the time incapable of understanding the proceedings in the case, and making his defense therein, he shall order said defendant to be committed to the care and custody of the proper state hospital for the insane to be there safely kept, cared for, and treated, until he so far recovers his reason as to be capable of understanding the proceedings and making his defense in said case.

Correspondence.

SEC. 28. It shall be the privilege of each and every inmate committed to any public or private hospital or asylum for the insane in this State, on entering the institution, or at any time thereafter, to choose one individual not connected with the said institution, as a correspondent with whom the said inmate shall be allowed to communicate freely in writing.

SEC. 33. Each and every inmate of any hospital or asylum for insane in this State shall have the privilege of communicating in writing with the governor and the secretary of the board of trustees in the same manner and under the same regulations as with the correspondents chosen under this act.

Patients shall be notified of their privileges.

SEC. 36. A copy of sections twenty-eight (28) to thirty-six (36) both inclusive, of this act, printed in pica type, shall be framed and posted in every ward of every insane hospital or asylum, public or private, in the State of Minnesota.

Discharge.

SEC. 45. The superintendent of any State Hospital for the Insane shall discharge any patient certified by him to be recovered, unless such patient stands charged with, or convicted of some criminal offense. In all other cases patients shall be discharged only by the board of trustees, and three trustees shall constitute a quorum to discharge a patient. When patients, improved or unimproved, are reported to the board of trustees, and recommended for discharge by the superintendent, such recommendation shall in each case state the reason why a discharge is advised.

Licensing.

SEC. 50. No person or association shall establish or keep an institution for the care, custody or treatment of the insane or persons of unsound mind, for compensation or hire or otherwise, without first obtaining a license therefor from the board of trustees; provided that this section shall not apply to any State institutions, and provided, also, that it shall not apply to cases where an insane person or person of unsound mind is detained and treated at his own home or that of some relative.

(To be concluded in May number, with opinions of the unconstitutionality of the law.)

Linear Craniotomy in Microcephalus, with a Report of Two Cases.—Parkhill (*Internat. Med. Mag.*, November, 1893).

The first case, a child nearly five years old, epileptic and idiotic, with markedly microcephalic and conical head, was operated on the right side with the result that within twenty-four hours after the operation it was observed that his expression was better and that he had lost his restlessness. Six weeks later, the operation was done on the other side of the head with good results. The outcome of this case is that the child has grown physically and has lost nearly all of that stoop which characterized his former condition. His face is now illuminated by intelligence, and he understands anything ordinarily comprehended by children of his age. He obeys commands from his parents perfectly, and understands directions given his brothers and sisters, and insists on their obedience.

The second case, a child nearly six years old, quite completely idiotic, no spasms, paralysis, or contractures; head megalophalic. Recovery from operation, but at the time of the reporting of case no noteworthy mental improvement. The writer is in favor of the use of the forceps for operating rather than the saw or chisel.

J. C.

Society Reports.

NEW YORK NEUROLOGICAL SOCIETY.

*Stated Meeting, held at the New York Academy of Medicine,
Tuesday evening, February 6th, 1894.*

Dr. M. ALLEN STARR, President, in the chair.

Dr. LESZYNSKY exhibited a portable, air-tight alcohol lamp, made of metal, which he stated he has found very serviceable in applying cupping glasses. It also serves all the purposes of a spirit lamp. The ordinary methods of applying the cupping glasses are very annoying and sometimes painful to the patient. In the cups with the rubber bulbs the rubber is apt to get hard and crack.

ELECTRICAL REACTIONS AND THEIR VALUE IN DIAGNOSIS AND PROGNOSIS.

DISCUSSION.

The PRESIDENT said that he has seen statements from various sources, some very dogmatic and others sceptical, in regard to the value of electrical tests as an aid to diagnosis and prognosis in various forms of nervous disease. A careful review of the literature of nervous diseases will reveal to anyone that most men who have written books on this subject have gone back to the original article of Erb, published in 1872, in the first edition of Ziemssen's Cyclopedia, and have copied Erb's diagrams and statements. Individuals who have had many opportunities of making electrical tests have noticed from time to time that their results did not correspond with the statements laid down by Erb. Their results, however, were not made public, or else they tried to explain them away, as if something was wrong with them. A discussion on this subject, therefore, is very timely.

Dr. C. L. DANA opened the discussion and took up the subject of the value of electrical reactions in spinal lesions. In connection with this subject he had particu-

larly studied the records of a certain number of cases in which he was able to test the reactions many times in the course of the disease. The tests were made in cases of anterior polio-myelitis, progressive muscular atrophy and bulbar palsy; also, in cases of facial palsy and locomotor ataxia.

It is absolutely necessary, Dr. Dana said, in making any comparative statements about our results, that we should understand how the reactions were taken by each observer, and what he means by reaction of degeneration. The reactions are subject to such variability, and it is so easy to deceive one's self, that the operation requires an extremely judicial state of mind and great care. In the tests made by himself he has employed an indifferent electrode, about the size described by Erb: this is to be tied down, not held by the hand, so that there are no variations in the amount of pressure. For the active electrode he employed a small, pointed electrode, the surface of which measures one square centimetre. By means of this one can get the muscular irritability at different parts of the muscle, one can see whether the contractions are sluggish or otherwise, and one also observes the diffusibility of the contraction, which is a form of reaction which has not been sufficiently noted. If an electrode with a large surface is employed, the "diffusible reaction" is not brought out with any certainty. The small pointed electrode can also be shifted to the motor point of the nerve, and thus the nerve reaction be obtained. In some cases, the strength of the current required is so great that the point electrode gives rise to too much pain; in such a case he employs the ordinary sized electrode. The electrode is first placed on the body of the muscle and reaction obtained with a gradually increasing current and then the same reaction with a gradually decreasing current; these reactions are compared with those on the opposite side and the operation repeated two or three times with a proper interval between to allow the muscle rest.

The three points that he has particularly investigated in connection with spinal lesions are, first, the relative irritability of the two poles; second, the character of the reactions, that is, whether they were sharp or sluggish, or sluggish and diffuse; and third, the course of the variations of the reactions in the different stages of the disease.

With regard to the relative irritability of the positive

and negative poles, many of the recorded cases merely show that the cathode exceeded the anode in irritability, without giving the exact number of milliamperes required to produce contractions. Dr. Dana said that he considered this an inaccurate method of making the measurements. In all records it should be carefully put down how many milliamperes are necessary to produce a positive pole contraction and then the negative pole contraction, or *vice versa*. In this way, by following the course of the disease, one will find that each pole has a definite course of increased and decreased irritability in accordance with the progress of the disease. The speaker exhibited a number of diagrams which he has prepared, showing the course of the polar irritability in several cases of progressive muscular atrophy, in two cases of anterior polio-myelitis, and in one case of double facial palsy; in the latter case he was able to make daily examinations of both sides of the face for a number of weeks. His observations go to show that there is a difference between the course of the polar irritability in neuritis and that in progressive muscular atrophy and polio-myelitis. In neuritis, there is a pronounced steady rise in the polar irritability, while in the spinal lesions it is very slight or absent. So far as his observations go, there is a true degenerative reaction in progressive muscular atrophy, as there is in polio-myelitis, but we only get it in certain stages of the disease. In all the descriptions of electrical degenerative reactions, the fact is spoken of that in normal muscles and in partly degenerated muscles the reactions are sharp and quick, but that when the muscles become degenerated the reactions are sluggish or vermicular. Further than this, with the point electrode, there is a diffuse contraction of the muscle; that is, the whole belly of the muscle, and even the adjacent muscles, will contract. This "diffusibility" of the contraction, Dr. Dana said, he considered equally important with the sluggishness, although it does not always take place. It was better seen with the anodal contraction. In conclusion, Dr. Dana thought that we had to revise many of our views regarding degenerative reaction, but it was too soon to formulate new views.

DR. W. M. LESZYNSKY continued the discussion, confining his remarks more particularly to the value of electrical reactions in cases of traumatic neuritis. His method of making the examination, he stated, was very similar to that outlined by Dr. Dana. The conclusions drawn by him were as follows:

1. That the value of electricity as an accessory method in diagnosis and prognosis of the disease of the peripheral nerves is not as universally recognized as its importance demands.

2. That the result of this procedure often furnishes corroborative and conclusive evidence, where only a provisional diagnosis has been made.

3. That the necessary technical skill in successfully pursuing such investigations and correctly interpreting the result, can only be acquired through special study and practice.

4. That the use of the faradic current alone is quite sufficient for diagnostic purposes.

5. That, as a rule, the galvanic current is supplemental to the faradic, and, in the absence of faradic irritability in nerve and muscle, it is of the greatest service in prognosis.

6. That the discovery of the reaction of degeneration is not an essential feature in the differential diagnosis as to the location of the lesion.

7. That the peripheral nerve fibres possess an inherent power of regeneration which seems almost unlimited, the length of time required for the completion of the regenerative process varying from a few weeks to seven years or more. Therefore, in severe forms of injury, the cause, degree and character of damage to the nerve are often of greater importance in prognosis than the demonstration of the reaction of degeneration.

8. That the presence of reaction of degeneration, or partial reaction of degeneration, is not incompatible with the preservation of motility in the same area. This paradoxical condition has been found in cases of lead poisoning and a few others, but thus far the cause has been inexplicable.

9. That strong currents are only rarely necessary. The weakest current that will produce a distinctly perceptible reaction is all that is requisite.

10. That a decrease or disappearance of faradic irritability in nerve and muscle simply denotes an interference with the nutrition in the course of the motor tract between the multipolar cells in the anterior horn and the peripheral nerve distribution. It does not enable us to judge of the nature of the pathological process.

11. That the character of the reactions does not differ, whether the lesion be situated in the cells of the anterior

horn, the anterior nerve roots, the nerve trunks, or in their ultimate distribution. The same rule holds good in reference to the various cranial motor nerves and their nuclei, such as the facial, hypoglossal and spinal accessory nerves.

12. When the farado-muscular irritability is lost, no reaction can be obtained by a rapidly interrupted galvanic current.

13. The secondary current from an induction coil is the one generally used in testing faradic irritability. Owing to its high electromotive force, the resistance encountered in the moistened skin may be disregarded.

14. The difference in the poles of the faradic current is only a relative one, and cannot be determined by the usual tests as applied to the galvanic current. The electromotive force in the secondary coil is greater at the "break" than at the "make." The electrode that is felt to be the stronger in its action is usually considered as the negative or so-called "faradic cathode."

15. In some apparently healthy individuals the musculo-spiral nerve fails to react to strong currents applied with the "faradic anode," while a comparatively weak current from the "faradic cathode" calls forth a quick response.

16. In a case of undoubted peripheral paralysis the faradic irritability may be preserved, but it almost invariably requires a stronger current to produce muscular contractions than upon the healthy side; (quantitative decrease). Dr. Leszynsky said he has never seen a case where this could not be demonstrated within a few days after the onset of the paralysis.

17. The character of the muscular reaction demands attention. A slow and labored contraction associated with decrease in faradic irritability denotes degenerative changes.

18. The faradic irritability may return in persistent cases of peripheral paralysis without any perceptible improvement in motility.

19. Electro-diagnosis is inapplicable in paralysis of ocular muscles.

20. When the farado-muscular irritability is lost upon skin excitation, its presence may be demonstrated in the muscle for a longer time by means of acupuncture.

21. If electricity is to be of any service to us in ascertaining whether the nerve-trunk has been divided or not, as a result of traumatism, the examination must be

made as soon after the injury as possible. We can then determine at once if special surgical interference is necessary. Should two or three weeks elapse before such examination, it will be impossible to state whether the absence of reaction is due to traumatic neuritis or to complete division of the nerve. Exploratory incision would then be called for.

22. The tests with the galvanic current require adequate apparatus and a working knowledge of the relationship between electromotive force, resistance and current strength. It also requires much time, patience and perseverance. Hence, its unpopularity.

DR. M. A. STARR spoke of the value of electrical reaction in cases of multiple neuritis. He reviewed the conclusions of Nothnagel, Pal, Gowers and others, which were to the effect that great variations in electrical reaction have been observed, and gave the histories of a number of cases of multiple neuritis coming under his observation. The first case reported was one of general alcoholic multiple neuritis, with total paralysis in both arms and both legs. In this case, within two months after the onset, when the paralysis was extreme and when no voluntary movement was possible in the muscles of the arm, forearm or hand, the electrical reactions differed completely in these localities. In the arm there was a diminution of response to both currents without polar changes; in the forearm there was loss of faradic response and diminution of galvanic response without polar changes; in the hand there was loss of faradic response, diminution of galvanic response with polar changes.

In two other cases of alcoholic multiple neuritis, very great variations were present in muscles which were equally paralyzed. In a case of diphtheritic paralysis there was a total loss of contractility to faradism, but no polar changes to the galvanic current. In another case of diphtheritic multiple neuritis in which ataxia rather than paralysis was a marked symptom, an interesting fact was noted. There appeared to be a slight weakness in the right supinator longus muscle. The electrical reactions of this muscle, however, were found to be normal, the reaction to faradism being prompt, and the cathode closure contraction being greater than the anode closure contraction. For purposes of comparison the left supinator longus was simultaneously tested, there being no voluntary paralysis of this muscle whatever. It was

found that the reaction to galvanism in this muscle showed polar changes, the anode closure contraction being greater than the cathode closure contraction, although there was no reduction in the faradic response. Here, then, was an observation which confirms the statement of Pal that electrical changes are sometimes present in muscles which are not paralyzed.

In closing his remarks, Dr. Starr said that every possible change to electrical reactions may be present in muscles affected in the course of multiple neuritis. The conclusion is inevitable, therefore, that to the electrical changes no very great diagnostic significance can be assigned. In the cases cited there was no parallelism between voluntary power and electrical condition. Voluntary power in all the cases seemed to return before the electrical reactions became normal. Therefore, we cannot project a reaction line upon a chart into the future and say that at a certain date when the electrical reactions become normal the voluntary power must necessarily return. Electrical reactions, therefore, while of some interest, are not to be taken as of great importance in the diagnosis of multiple neuritis.

Dr. B. SACHS discussed the value of electrical reactions in dystrophies. In regard to the general subject of reaction degeneration, the speaker said he has been forced to the conclusion that there are only two points of value. The first and most significant feature of reaction degeneration is the loss of faradic response. The second is the sluggishness of the contraction. The variability between the anodal and cathodal contraction is extremely great, and he has long since abandoned the idea that the relationship between the two can be utilized in all cases, either for the purpose of diagnosis or prognosis. Physiologists have demonstrated with considerable plausibility that the electrical excitation of nerves and muscles depends largely upon the rapidity and succession of single shocks. In muscles in which the faradic contractility seems to be absent, if you diminish the interruptions, you will often get a contraction, whereas you will not get it with the ordinary faradic machines we use. Dr. Sachs said he believed we can state that reaction degeneration is present in any given case if the faradic response is absent. He agreed with Dr. Dana's remarks regarding the variations in polar irritability in different stages of anterior polio-myelitis, and other diseases. In Erb's diagrams, which have been

so extensively copied, he does not differentiate between anodal and cathodal response. He does not make any distinction between the two poles. Dr. Sachs said he has found the greatest possible variability in the action of the two poles. In many cases, particularly in peripheral nerve palsies, he has found that the cathodal excitability is increased as long as the disease lasts. After full power has returned, the faradic excitability may still be diminished or loss for a period of time varying between several weeks and a year. In exceptional cases the faradic response remains normal from beginning to end, but the galvanic changes are pronounced.

The speaker said it is well to divide muscular dystrophies into two classes, namely, primary muscular dystrophies and the so-called amyotrophies. In the pure dystrophies we rarely get a definite reaction degeneration. That is, there is rarely entire absence of faradic response and marked sluggish reaction, excepting in the very last stages of the disease when so little muscular fibre is left that we cannot expect to get either faradic or galvanic response. In primary muscular dystrophy, therefore, there is no typical reaction of degeneration. In progressive muscular atrophy of spinal origin reaction of degeneration may be present in its entirety, but we find the partial reaction of degeneration and other irregular types of electrical reaction. As regards the value of electrical reaction in diagnosis and prognosis, Dr. Sachs said he is fully in accord with the statements made by the previous speakers, but he still believes that Erb's observations were extremely well founded, and hold good in the majority of cases. It is certainly true that if the faradic response—in a case of facial paralysis, for instance—is never lost, in nine cases out of ten recovery will be more prompt than where it is lost. That the faradic irritability returns in some cases before the power, as claimed by Dr. Leszynsky, he thought exceptional, to say the least. It is much more certain that the power returns long before the faradic does in the vast majority of cases.

As regards the value of electricity as a means of prognosis in cases of muscular dystrophy, the speaker thought it was very slight. The senses of sight and touch will teach us much more than the electrical examination in such cases. By the degree of response to the faradic and galvanic currents we can get some idea as to the condition of each individual muscle, but no defi-

nite conclusions can be drawn. In some cases of typical muscular dystrophy, certain muscles unquestionably do recover; others do not. In the cases which recover, the electrical reactions do not undergo any decided changes.

DR. A. D. ROCKWELL said he agreed with Dr. Sachs that the main importance of electricity as an aid to diagnosis, was in connection with the absence or presence of the faradic reaction. The importance of this subject to the general practitioner was impressed on his mind by a case that recently came under his observation. The case was one of facial paralysis, and the patient for seven weeks had been under the care of a general practitioner, who treated him with the faradic current without any benefit. Under the use of galvanism, the patient at once began to improve. The following case indicates very positively the value of electricity as a diagnostic agent: The case was one of typical facial palsy on the right side from peripheral causes. During the course of the patient's recovery from this, a paralysis occurred on the left side of the face; this started as a peripheral paralysis, but on testing the muscles with faradism, it was found that they responded with perfect facility. Therefore, it was evident that the paralysis on this side was central. Shortly afterwards the patient had a second attack involving the right side of the face, again peripheral. Dr. Rockwell said that in ovarian or uterine diseases, if congestion or inflammation exists, the faradic current produces no improvement, but rather aggravates the pain; in conditions where inflammation and congestion are absent, the application of the faradic current will relieve the pain. He considered this point of importance also from a diagnostic standpoint.

DR. GEORGE W. JACOBY said that the statements made in the text-books on this subject are too dogmatic. The diagnostic value of electricity is limited to certain peripheral affections, and even there it is not as great as originally claimed. In prognosis also we must limit its value. In a number of cases of facial paralysis of long-standing, he has found it impossible to obtain any reaction of degeneration. In a couple of other cases in which the paralysis had entirely disappeared with the exception of a slight obliteration of the labio-nasal fold, there was marked reaction of degeneration. These are exceptional cases, and he could give no explanation of them. Cases have been published in which there was a

reaction of degeneration found in cerebral palsies; also in cases of primary dystrophy.

DR. C. A. HERTER referred to the electrical reactions in some cases of cerebral palsies. In one case coming under his observation, a woman aged seventy years, the patient had a series of slight apoplectic attacks, succeeded in time by complete paralysis of the right side of the body—face, arm and leg—and complete motor aphasia; at the end of one week, distinct atrophy of the muscles of the forearm was noticeable, and at the end of one month it was very pronounced. The faradic irritability of certain muscles of the forearm was very much reduced. The contractions were exceedingly sluggish, and the reaction of degeneration was undoubtedly present. The galvanic irritability of these muscles was somewhat diminished. Dr. Herter also referred to the rapidity with which the reaction degeneration makes its appearance in some cases of injury of the spinal cord. In two instances coming under his observation it was pronounced at the end of four days.

Dr. L. STIEGLITZ agreed with Dr. Sachs that the most important feature of the reaction of degeneration is the sluggishness of the contraction. It must be borne in mind that muscles of coarse fibre react much more sluggishly than those made up of fine fibres.

Dr. G. M. HAMMOND said he agreed, in general, with the statements made by the previous speakers. Like Dr. Sachs, he has noticed that muscles that do not respond to a rapidly interrupted faradic current will respond to a slowly interrupted one. The reverse is true with the galvanic current. With a battery that he employs he can get about 170,000 interruptions per minute, and he has found that the greater the number of interruptions, the stronger the current required. This rule applies in both healthy and diseased conditions.

Dr. STARR narrated the history of a case of facial paralysis that came under his care. An examination showed increased contractility to galvanism in the muscles, and perfect preservation to faradism, the cathode being greater than the anode. On the strength of this he gave a favorable prognosis. After six weeks careful treatment the reactions remained about the same, but the paralysis was no better. The patient then went to another neurologist, who made a similarly favorable prognosis; he continued the use of electricity with equally unfavorable results. That is now a year

and a one-half ago. The reactions are still normal, but the face remains just as much paralyzed as it ever was.

(This discussion is continued in the meeting of March 6. See below.)

Dr. DANA exhibited a portable perimeter which he has devised.

*Stated Meeting, held at the New York Academy of Medicine
Tuesday evening, March 6, 1894.*

Dr. M. ALLEN STARR, President, in the chair.

A CASE OF EXOPHTHALMIC GOITRE; THY-
ROIDECTOMY.

Presented by Dr. J. ARTHUR BOOTH. The patient was a female, aged twenty-four, single. Family and personal histories negative. About two years ago the woman first noticed an enlargement of the throat, and three months later the eyes became affected. The patient is positive that there were no heart symptoms until six months ago, when palpitation, throbbing in the vessels of the neck, shortness of breath and flushing of the face appeared. All these symptoms gradually increased in intensity, and the patient became irritable, easily excited, anxious and unable to sleep because of the tumultuous action of the heart. When the woman first came under observation both the eyes were very prominent, especially the left, and the lids did not follow the movements of the eye-balls (Graefe's symptom). The pupils were moderately dilated, reacting to light and accommodation. Fundus normal. Vision not impaired. The enlargement of the thyroid body was marked, the right lobe being the larger. Pulse 150, of high tension. Apex beat of the heart diffused; no murmur. Respirations, 24. No tremor of hands or fingers. Examination of urine negative. The patient was given daily applications of galvanism and received one two-hundredth of a grain of aconitia twice daily and fifteen grains of iodide of potash three times daily. She was also instructed to practice full inspiration frequently and to rest as much as possible during the day. Under this treatment there was decided improvement in the symptoms, but only

temporary in character, and on November 8, 1893, thyroidectomy was performed by Dr. B. F. Curtis at St. Luke's Hospital, the right lobe of the thyroid being removed. The patient made an uneventful recovery, and during the four months that have elapsed since the operation there has been a steady improvement in all her symptoms. The pulse-rate now ranges between 96 and 110. Many of her nervous symptoms have entirely disappeared. She sleeps well, does not suffer from palpitation and is able to attend to her house-work. The eyeballs are much less prominent. The left side of the thyroid has diminished in size to a slight extent since the operation.

A CASE OF EXOPHTHALMIC GOITRE; THYROIDECTOMY.

Presented by Dr. ROBERT SAFFORD NEWTON. The patient was a girl, aged twelve. In this case almost complete extirpation of the thyroid was performed, only a small supernumerary lobe being left. Since the operation, the exophthalmos, which was very pronounced, has almost entirely disappeared. Before the operation the pulse-rate was 180, and the child suffered from cyanosis. The systolic and diastolic heart-sounds were almost synchronous. The operation was performed by Dr. Fowler on October 21, 1893, and the child was out of bed three days afterwards. Her pulse now averages about 100. She is able to attend school, and is much improved in every way.

The PRESIDENT stated that the absolute contrast between the symptoms in exophthalmic goitre and myxœdema makes it seem very probable that many of the symptoms of the former disease are due to an excessive secretion of the thyroid gland, just as those in myxœdema are due to its suppression. Up to the present time, there are not enough cases on record to permit us to make definite statements regarding it.

A CASE OF PROGRESSIVE MUSCULAR ATROPHY OF THE PERONEAL TYPE.

Presented by Dr. GEORGE W. JACOBY. The case was that of an illegitimate child, a girl, aged twelve years. The mother states that the child's father was a large,

well-proportioned man, but that he was rejected for military service abroad because his muscles were weak. This is the only hereditary factor obtainable. The history of the case, in brief, is as follows: There was no trouble at the child's birth. When two years of age, some months after an attack of measles, she complained of pain in the lower extremities, which was so severe that she could not stand. This lasted about six weeks, and from that time on she appeared to have difficulty in walking. She has always been able to move her legs in every direction. When she was four years old, it was noticed that one leg was weaker and thinner than the other. About one year ago, it was first noticed that there was an atrophy of the thigh on the side opposite to that of the affected leg. She holds the legs in a stiff and clumsy position. There is a lack of symmetry between the two buttocks. She has marked lordosis and slight lateral curvature. The muscles of both thighs are in a continual state of unrest, almost like fibrillary twitchings. The right foot is in equino-varus position. There are no sensory disturbances. There is partial reaction of degeneration in the affected muscles. The arms are not affected. The superficial reflexes are normal. The tendon reflexes are present, but somewhat reduced on the affected side. In conclusion, Dr. Jacoby said that while he regarded the case as one of progressive muscular atrophy of the peroneal type, it was not absolutely a typical one, inasmuch as the atrophy, although, bi-lateral, is a symmetrical, one leg being affected and the opposite thigh.

Dr. B. SACHS said he agreed with Dr. Jacoby's diagnosis of the case. The atypical distribution of the atrophy should not militate against the diagnosis, as that is really the last thing to be considered, although still so much insisted on by many writers. The distribution of the atrophy is largely a matter of chance. He had seen six cases of progressive muscular atrophy of the peroneal type—which is, perhaps, the rarest form of the disease. In none of these was there a crossed distribution of the atrophy, as in Dr. Jacoby's case.

A CASE OF HYSTERIA, WITH PECULIAR EPILEPTOID ATTACKS.

Presented by Dr. BOOTH. The patient was a male; aged 22; jeweller; a native of Germany. During the

past two months he has had attacks when he suddenly begins to sing, to slap his knees with his hands (either one or both) and to stamp his feet. The attack lasts only a few seconds and ends with a screech. The attacks come on without apparent cause, and occur frequently during the day and occasionally at night. Patient does not lose consciousness. When he was eight years old he had similar attacks, extending over a period of nine months: again, three years ago, he had them for a period of about one year. At that time he went under treatment at Strasburg, Germany, but did not receive any benefit. The attacks ceased by themselves. Patient does not smoke; drinks moderately; practiced masturbation to a moderate extent when he was younger, and continued it for three years. Family history negative. Never had a fall or blow. Denies venereal disease.

A CASE OF NEURALGIA OF THE GREAT OCCIPITAL NERVE, ASSOCIATED WITH SYMPTOMS OF A DESTRUCTIVE LESION OF THE CERVICAL SYMPATHETIC.

By Dr. ALEXANDER B. JOHNSON. The patient was a man aged 60; married; a railroad conductor by occupation; denies venereal disease; no alcoholic habit. Had malaria thirty years ago. No distinct history of rheumatism. No signs of organic disease. Over the chest and back he has several old, white, depressed scars, which he states are the result of abscesses he had many years ago, and that they were a long time in healing. The patient presented himself on November 1, 1893, complaining of a severe pain in the right side of the head, which made it impossible for him to work. This trouble began three years ago. The pain is of an aching character, and occurs in paroxysms. It is referred to a point about two inches behind the lobule of the right ear, and radiates upward and backward to the vertex. There is marked tenderness on pressure over this area. The patient further complained of inability to see well with the right eye, and the upper eye-lid on that side drooped so far as nearly to cover the pupil when the patient looks straight before him; the lower eye-lid is slightly elevated. The right pupil is contracted, smaller than the left, and does not react to light. The eye is watery and the right

side of the face is redder than the left. There is no paralysis of the face, but the skin and muscles appear less full and feel flabby in comparison with the left side. The patient was examined by Dr. M. Allen Starr, who located the lesion in the cervical sympathetic, and advised an exploratory operation, as the patient had undergone medical treatment of various kinds without relief.

On November 4, 1893, an incision three and one-half inches in length was made along the posterior border of the right sterno-mastoid, beginning just below the mastoid process. The sterno-mastoid muscle and internal jugular vein were drawn forward by means of a blunt hook, and the internal carotid artery was lifted up. The superior cervical ganglion was found to be included within the sheath of the internal carotid, to which it appeared to be distinctly adherent. The adhesions were divided and the ganglion was freed, as well as the cord below to the extent of two inches. No abnormality in appearance could be recognized either in the ganglion or cord, and the wound was closed. The neuralgic pains and the tenderness of the scalp disappeared at once after the operation. The lacrymation and flushing of the face ceased. The pupil on the right side reacted slightly to light and became a little larger, and his right upper eye-lid drooped so little that it was scarcely noticeable and did not at all interfere with vision. At the end of six weeks, however, all the symptoms had returned, and at the present time the patient finds himself in no way improved.

In closing his paper, Dr. Johnson said that while the symptoms in this case were fairly typical of paralysis or a destructive lesion of the cervical sympathetic, it is possible that they were due to a lesion situated in the spinal cord of a destructive character, the exact location of which it is at present impossible to determine. He was unable to explain the immediate temporary benefit of the operation in this case, excepting that it was the result of a powerful peripheral impresson.

Dr. WILLIAM M. LESZYNSKY referred to a case which he presented some years ago in which there was hemorrhage into the cervical portion of the cord, with decided symptoms of involvement of the cervical sympathetic on the same side.

The PRESIDENT said that Krouse (*Zeitschrift für Klinische Medicin*, 1891) reports nine cases of crushing accidents to the spinal cord, involving the lower cervical

and upper dorsal segments in which there were marked symptoms referable to the cervical sympathetic. Regarding the case narrated by Dr. Johnson. Dr. Starr said his own impression was rather against the idea of a cord lesion, on account of the absence of other cord symptoms, although there was not a valid reason for excluding it entirely.

ELECTRICAL REACTIONS AND THEIR VALUE IN DIAGNOSIS AND PROGNOSIS.

DISCUSSION (Continued).

The PRESIDENT stated that the subject of electrical reactions, and their value in diagnosis and prognosis, which had been taken up at the last meeting, was such an important one, that it had been decided to continue it at this time.

Dr. FREDERICK PETERSON said that in the main, he agreed with the previous speakers regarding the reaction of degeneration, and with the conclusions recently published by Remak, in particular. We have found that both nerves and muscles may respond to both the faradic and galvanic currents, and yet degeneration may exist. With the galvanic current, polar changes are inconstant; CCC may be greater than AnCC. In normal muscles we occasionally find, on the other hand, that AnCC may be greater than CCC. There is one sign that may be considered as always present where there is degeneration in the spino-muscular portion of the motor tract, and that is, the sluggish, vermicular contraction of the muscle. Furthermore, in the great majority of cases of degenerative lesions in the anterior horns or peripheral nerves, the faradic reactions are diminished or lost. Dr. Peterson felt that sufficient stress had not been laid upon the actual value of electro-diagnosis in distinguishing cerebral palsies from the degenerative cases. He was convinced that most neurologists found it of the same value as heretofore, though we had modified our opinions as to the manifestations.

One of the speakers at the last meeting called attention to the occasional occurrence of atrophy with degenerative reactions in cerebral palsies, as cited in two cases by Eisenlohr some years ago. It was interesting to know that Eisenlohr had recently made autopsies in both of these cases, and had found degeneration in the

peripheral nerves. Other observers have found atrophic changes in the ganglion-cells of the anterior horns in cases of hemiplegia with muscular atrophy. There is no evidence in those rare instances in which muscular atrophy accompanies cerebral palsy, that the trophic change is produced by an affection of trophic centres in the brain. On the contrary, all the evidence at hand shows that the atrophy depends upon degenerative lesions in the spino-muscular portion of the motor tract. The value of the electrical examination remains therefore, as before.

The electric reactions are certainly of great value in the distinction of the primary muscular dystrophies from progressive spinal atrophies.

Dr. J. F. TERRIBERRY continued the discussion. He confined his remarks to the value of electrical reactions, as regards diagnosis and prognosis, in paralysis of the facial nerve, and gave the following conclusions, which he had deduced from an analysis of twenty-four such cases coming under his observation:

1. That we have in electricity an agent of the highest value as an aid to diagnosis in paretic troubles of the seventh nerve.

2. That the value of electricity as an aid to prognosis in facial paralysis is comparatively slight. Less than one-half the cases reported could be prognosticated, and even those with considerable hesitation.

3. That those cases in which the degree of paralysis is slight are the ones of which we can speak with most confidence by the aid of electricity.

4. That it is impossible to foretell the issue of severe cases by means of the electrical examination.

5. That the teachings of Erb respecting the diagnosis and prognosis of lesions of the motor peripheral nerves by means of electricity are the best at our command, although very imperfect.

Dr. WILLIAM J. MORTON sent a communication on the subject of electrical reactions, which was read by the Secretary. He stated that in case of degeneration of the nerve, the faradic and galvanic excitability is diminished or lost, while in case of degeneration of the muscle the faradic excitability is lost, but there is an exaggeration of the galvanic excitability and an inversion of its normal polar action. This abnormal reaction of an abnormal muscle was indeed a most brilliant discovery by Erb, but it has always seemed to him that an over-re-

finement of diagnostic and prognostic significance has been attached to it. As regards diagnosis, the electric reaction is often the only means of deciding that a given nerve or muscle is in process of degeneration. In traumatic neuritis, in multiple neuritis, and in sciatic, facial and many other neurites, in the dystrophies and the spinal lesions due to affection of the nerve cells of the anterior cornu, it is certainly a great satisfaction to feel sure that the degenerative process exists, and this satisfaction is easily acquired by aid of electrical reactions. He did not, however, consider the reactions of much value in making a differential diagnosis between one and another of the above affections, or between a multiple and migrating neuritis, or between sub-acute or chronic anterior poliomyelitis and a progressive muscular atrophy, or, lastly, between a cerebral and spinal lesion. As regards the prognostic value of electrical reactions, Dr. Morton believed that over-confidence is placed in the deductions to be drawn from "the complete" and the "incomplete reaction of degeneration." In its complete form, as we sometimes see it in grave facial paralysis and in infantile spinal paralysis, our prognosis is unmistakably bad and fairly exact. It is in the incomplete reaction of degeneration that we are often proven to be mistaken if we indulge in a too exact prognosis. In cases where the electrical reactions of both nerve and muscle have been completely lost, he has known the muscle to regain some part of its former volume, and the normal electrical reactions to return by means of long-continued local treatment by aid of sparks from an influence machine. He considers that the earliest sign of the reaction of degeneration is the failure of a muscle to respond to a spark which will set a corresponding normal muscle into contraction.

Dr. LESZYNSKY said that in making the differential diagnosis between peripheral and cerebral lesions in cases of facial paralysis, the quantitative changes should be taken into consideration; in the peripheral cases there is a quantitative diminution, while in the cerebral cases there is a quantitative increase. In paretic condition, he still relies on electricity, both as regards diagnosis and prognosis. There are cases in which we make mistakes, but in the vast majority of instances the laws laid down by Erb are correct.

Dr. B. SACHS said that if the discussion of this question at the last meeting had a nihilistic tendency, it

was due to the fact that it was treated from the neurologist's point of view, and the speakers were attempting to make out in what way the current would be of value in refinements of diagnosis. He expressed the opinion that all of us still recognize the vast importance of electricity in the differential diagnosis between cerebral and peripheral cases, or cerebral and spinal cases, and also its great value in functional cases.

Dr. E. D. FISHER said that, in the main, he agreed with the statements made by the previous speakers. In certain diseases, such as the dystrophies, chronic anterior poliomyelitis and progressive muscular atrophy the electrical reactions are of great value. It is true that in the dystrophies we do not get an absolute loss of the faradic response until very late in the disease; with marked atrophy we may still get a response to the faradic current wherever the fibres remain. As regards the differential diagnosis between cases of progressive muscular atrophy and chronic poliomyelitis, in the former we do not, as a rule, get a complete reaction of degeneration—we may get a partial one—while in the latter we are very apt to get complete reaction of degeneration. In differentiating between cerebral and spinal cases, electricity is of value, although not always essential.

PHILADELPHIA NEUROLOGICAL SOCIETY.

Stated Meeting, January 22, 1894.

The President, Dr. CHARLES K. MILLS, in the chair.

The PRESIDENT made some

REMARKS ON THE HISTORY OF THE PHILADELPHIA NEUROLOGICAL SOCIETY DURING TEN YEARS.

Dr. J. W. McCONNELL reported from the Polyclinic Service of Dr. Mills,

TWO CASES OF SYRINGOMYELIA, ONE OF UNILATERAL TYPE. (See page 237.)

EXHIBITION OF THE UNILATERAL CASE.

DISCUSSION.

Dr. CHARLES A. OLIVER.—I have examined this man and find that the pupils are of the same size and that each iris responds equally and freely both separately and combinedly to light stimulus. I also find that they respond freely and equally in separated action to similar acts of accommodation and convergence, and combinedly to conjoined acts of accommodation and convergence—thus adding my testimony in the favor of iritic action in this most interesting case.

Dr. F. X. DERCUM.—The psychologists have been charged almost as a body with claiming that the pain sense and the tactile sense were the same thing. Now, clinically, we have all seen the separation of the tactile from the pain sense. If I understand the report of this case, this man shows the same thing. A patient at the Philadelphia Hospital with syringomyelia, has tactile sense with absolute loss of the pain sense over the right arm, shoulder, right side of neck and face.

Professor LIGHTNER WITMER.—I should say that psychologists as a body do not confuse the pain sense

and the tactile sense. There is a body of psychologists that consider pleasure and pain to be a quality of all sensation, not only of the tactile sense, but also of the color sense and the temperature sense. Mr. Marshall has presented one of the newest forms of this theory and I understand that certain of the neurologists of New York are rather tempted to subscribe to this theory, and that Dr. Dana, accepting the psychological analysis of Mr. Marshall and others, has come to the conclusion that it is useless for neurologists to hunt for pain nerves, because pleasure and pain are related through phenomena that are to be taken as different aspects of sensation; Mr. Marshall's peculiar theory being that they are due to nutritive conditions of the organ that may be involved. I, however, would not say that even a small body of psychologists subscribes to this view.

Dr. WHARTON SINKLER.—This case seems to me to be one of syringomyelia, although it is peculiar from the fact that the thermal anæsthesia is limited to one lateral half of the body and that there is not the dissociation of the pain and thermal sense with which we usually meet in syringomyelia. Of course, it must necessarily be that in this disease, there are different degrees of destruction in the centre of the spinal cord, and consequently varying symptoms. This case also differs from the most common cases of syringomyelia in the absence of muscular atrophy which is a common symptom in the absence of joint lesions and in the preservation of the muscular power for such a length of time. Nevertheless, I believe that it is perfectly proper to consider this a case of syringomyelia.

Dr. CHARLES K. MILLS.—One practical point in the diagnosis of this case seems to have been overlooked, and that is the question whether or not this man could have any localized unilateral lesion in his cervical spinal cord. I have seen two cases in which the diagnosis of syringomyelia was at least provisionally made; in one case the symptoms were loss of power and wasting in both upper extremities, with distinct changes in the pain and temperature sense and other symptoms which made up a fair picture of syringomyelia. This case came on after injury. He had, however, no deformity in the region of the neck or upper dorsal spine. While I discussed the question of syringomyelia with his physician, I also said that it was possible to explain the case by some lesion of the cervical spine. The man returned to his home, and

was treated by extension and similar measures and a year later was practically well. I know of another such case. The man before us to-night has no changes in the iritic reflexes, no loss of knee-jerk, no ataxic symptoms; he has an imperfect history of some pain lasting a short time. He has ankle clonus on both sides. The condition might be due to unilateral compression or partial compression of the cord, although it is not probable. This has an important bearing on treatment.

Dr. CHARLES S. POTTS.—In this connection I should like to mention a case which I saw at the University Hospital last summer a year ago. The patient had all of the classical symptoms of syringomyelia—atrophy of the muscles of the arms, spastic condition of both legs, increased knee-jerk, loss of temperature and pain sense and preservation of the sense of touch. I made a diagnosis of syringomyelia. The man died sometime afterward and Dr. Guiteras made a post-mortem and said that there was no central lesion of the cord, but that there was cervical pachymeningitis. This man had, however, never complained of any pain. Microscopic examination of the cord has as yet not been made.

Dr. WHARTON SINKLER.—There is no question that cervical pachymeningitis simulates syringomyelia more closely than does any other disease. One can hardly imagine a pachymeningitis of the cervical region which could be strictly unilateral. This affection is almost always associated with pain and rigidity in the neck muscles. There are also muscular wasting, but no changes in the temperature and pain sense.

Dr. SAMUEL WOLFE read a paper on

POLIO-ENCEPHALITIS SUPERIOR ACUTA, WITH
REPORT OF A CASE. (See page 227.)

DISCUSSION.

Dr. CHARLES A. OLIVER.—I was much interested to hear Dr. Wolfe's account of the total exterior and interior ophthalmoplegia in his case. My own experience with such a type of paralysis has been limited as I have seen the onset and disappearance of the symptoms in but two cases of total involvement of the third, fourth and sixth nerves; both of these cases, however, were not of the exact type described to-night.

One was the case of a lad, fourteen or fifteen years, who, although when first seen was unable to converge to the median line any nearer than about thirty-five centimetres, yet was able to readily have either internal rectus muscle respond when the opposite externus was brought into combination with the internal muscle during conjugate lateral deviation at fixation objects as near in as eight and ten millimetres. In this peculiar way his series of physiologic muscle-groupings failed to act one after another during a period of some three or four weeks. I gave large doses of iodide of potassium, one hundred and one hundred and fifty grains daily, and the action of the muscles gradually returned in curious physiological sequences. In this case the interior ophthalmoplegia persisted longer in the iris grouping than in the ciliary muscle. The second case I saw only during convalescence. It was syphilitic in type and made a rapid recovery by the administration of large doses of iodide of potassium, one hundred to two hundred grains daily. It also passed through the same peculiar physiological changes; that is, the action of any one muscle under certain impulses seemed to be lessened in work in certain ways more than whilst it was under other conditions.

I have recently had a most instructive case of the chronic type in a child eight or ten years of age, in regard to which Dr. S. Weir Mitchell kindly gave an opinion. The paralysis was limited to the exterior group of the ocular muscle. There was incomplete ptosis and there were some facial disturbances. After a careful analysis and general condition of the symptoms, and a study of the personal and family histories, Dr. Mitchell was of the opinion that the case was one of hereditary syphilis.

I have had some seven or eight more or less complete cases of the chronic types. In almost every instance that I have had opportunity to study, I have found some slight degree of optic-nerve degeneration with diminution of the fields of vision. In all they were concentrically diminished in size, especially for green and red. In one or two and at various times in the same case, the field borders appeared indented.

Dr. CHARLES K. MILLS.—This case recalls a certain clinical type, which, I think, has not been recorded in any accurate manner, although the cases must have been observed. In these cases the affection comes on sud-

denly, practically as an apoplexy, paralyzing either the third or sixth nerve with anæsthesia to pain and temperature on one side of the body. I have seen several such cases, and I have seen them in two forms, a severe and a milder type in which approximate recovery takes place. They are nearly always syphilitic cases. They recover to a certain extent, but rarely entirely. The ocular conditions disappear more promptly than the disorders of sensation which may remain permanently.

Dr. SAMUEL WOLFE.—As I said in the paper, I think that syphilis can be excluded in this case. The possibility that the influenza poison was the cause in this case is well worth consideration. We must admit that in syphilis and in various other diffused inflammations within the cranial cavity the nuclei of the eye muscles are occasionally involved, more often unilaterally than bilaterally, but so perfect a type of ophthalmoplegia with so little disturbance of consciousness and so little general disturbance, can, I think, only come from an inflammatory lesion and a lesion which in its selective action elects the motor cells of these nuclei and leaves alone the surrounding tissues. I believe that all of the other symptoms in this case can be explained on the theory of indirect action,—certain nutritive and circulatory changes which are present in the neighborhood of the inflammatory focus. I, therefore, repeat that I believe that we have here a distinct disease entitled to this name and that this case is a typical instance and that the ophthalmoplegia which occurs in the course of other diseases can be best excluded by a study of the cause and taking into account the bilateral character and the absence of other symptoms due to direct action.

Book Reviews.

PAIN, PLEASURE AND ÆSTHETICS. An Essay concerning the Psychology of Pain and Pleasure, with Special Reference to Æsthetics. By Henry Rutgers Marshall, M.A., (MacMillan & Co., New York.)

Mr. Marshall has long been known as an original thinker in the field which he has chosen for interpretation ; so that this volume which he now presents and which has been looked for for some time, deserves the best attention, not alone of Simon-pure psychologists, but of physicians, and especially of neurologists.

The book comprises seven chapters and an introduction.

The author is particularly happy in the felicity of expression, terseness of language and absence of technical verbosity in this introduction and in the introductory summary with which each chapter opens. For instance, in speaking of the relation of art and science he says : " The province of science (apart from the work of scientific *genius*) is to bring the production of genius into such relation with our life that we may ourselves in some measure use the fire she kindles to lighten our path ;" and again, " A man whose genius is artistic will never be led away by scientific concentration."

The first chapter is taken up with the psychological classification of pleasure and pain, in which the author contends that there are three possible methods of classifying pleasure and pain. (1) That pleasure-pain modes are the fundamental elements from which all mental life develops. (2) We may believe that in pleasure-pain we have a special mode of mental activity, a series *sui generis*, unlike and standing apart from any other mental state in character and means of genesis, which, however, is connected with all other mentality in some subtle way. (3) That pleasures and pains may be differential qualities of all mental states, of such nature that one of them must and all of them may under their proper conditions, belong to any element of consciousness.

It is to this quale theory that Mr Marshall lends the weight of his contention. While it cannot be claimed that the quale theory has anything of novelty about it, it is certain that it has not had heretofore a more able advocate than Mr. Marshall.

The theory that pleasure and pain are sensations, particularly as advocated by Nichols, is considered in some detail, and it is concluded that the utmost that can be claimed for these arguments is, that they furnish ground for the provisional acceptance of the view in question, as a working hypothesis, unless objections to the acceptance of the hypothesis appear in other directions. To the author such objections do appear.

To the experiments of Goldscheider to demonstrate the existence of

pain terminals, Mr. Marshall gives no credence. On just what ground is not apparent, because Goldscheider has never retracted his statements about pain terminals, nor have they been disproven. Therefore, although they may not appeal to the psychologist, emanating as they do from one whose scientific attainments are of the highest order, they should lend much weight to the argument until disproven. The fact that the discovery of pain nerves has been claimed, suggests to the author, considering the close connection of pleasure and pain, that there should be some indication of the existence of pleasure nerves. Although this is a fact, it in no way detracts from the evidence of the existence of pain nerves. Mr. Marshall believes that the difficulties of the sensational view become more marked when we consider the matter of brain locus. To show how contradictory is the evidence of brain locus, he quotes Courmont as stating that the cerebellum is the seat of all pleasure and pain activities. But this statement of Courmont does not seem so *outré* if we are willing to consider for a moment that the cerebellum is the organ that presides over sensory function, as he states it to be.

Mr. Marshall does not give a full hearing to the experimental and pathological evidence which goes to show that the limbic lobe is the seat of tactile and pain perception. The laboratory experiments that have been made by Horsley and Shafer and Yeo, are of great importance and worthy of consideration.

Pathological evidence, such as that furnished by the cases of Shaw Savill, Edinger and others, lend weight to the sensational theory of pain and are not consistent with the *quale* theory.

So intense and constant was the pain in the case reported by Edinger that the patient was driven to suicide after two years' suffering. The autopsy showed a spot of embolic softening in the dorsal portion of the external nucleus of the left optic thalamus, slightly involving the internal capsule at the posterior portion, the *carrefour sensitif* of Charcot. That is, pressure upon the conducting pathway to the limbic lobe.

The author states: "Each of the typical sensations has a very special means of production by which it, and it only, is brought into consciousness. None of them has the characteristic which is observable in pleasure-pain, of being aroused by the widest range of psychic occurrence."

The sensation of heat, burning, hot flashes, that occur so frequently in neurotic people and the "nervous" chills so vivid and frequently very troublesome, and dependent or aroused by psychic occurrences are at variance with the above statement. Mr. Marshall farther on in this chapter inquires why pain nerves do not atrophy during long periods when they are inactive. He says truthfully that we may go for years quite unconscious of the activity of our abdominal organs and then in a moment have the most agonizing pain. And then inquires why they have been dormant all this time. If the pain nerves are present he infers that they should functionate. If they are present and do not functionate they should atrophy.

Exactly the same arguments could be advanced against the existence of nerves of which we are cognizant. It would be quite possible for one

to exist without feeling heat or cold, and it is not probable that the thermal terminals or conducting apparatus would atrophy.

Again, he says, that if pain nerves are so widely distributed, as is implied by the sensational theory, there should be a more distinct localization of pains than is experienced.

There are plenty of observations to prove a distinct localization of pains. The reviewer has in mind a patient who so accurately localizes his painful sensations that he visits his physician loaded *cap-a-pie* with accurate drawings, showing the exact localization of pain in the different parts of the body.

In order to show the relative importance attached by the author to data obtained from introspection and from psycho-physics, we may be permitted to quote the following: "The mass of observations from introspection is large in comparison with what has been obtained from the studies on the physical side, and this should lead to an emphasis of the former, in our time at least; and it seems to me clear that the balance will always be in the favour of introspection; that it is the final reference to which all psycho-physical result must be made now and always. The rapid development and the brilliant and valuable results obtained from this new science of psycho-physics, have, however, led, if not to a disregard of introspective evidence, at least to an over-emphasis of the data from neurology. The sensational hypothesis as to pleasure and pain under discussion, appears to me to be eminently a case in point. The evidence produced in favor of this hypothesis is almost altogether physiological and anatomical, and furthermore, in my opinion, is in itself not at all of such a nature as should lead a truly scientific mind to adopt the hypothesis without reserve." Although we can by no means agree with the author in the last sentence of this quotation, the entire quotation fairly represents the position of the author in handling the subject.

The remainder of Chapter I. is taken up principally with the objections to classifying pleasure and pain with emotions, and with law of Algedonic representation.

Chapter II. is concerned with the instincts and emotions, with particular reference to the art impulse which is defined as "a blind impulse which leads men to create with little or no notion of the end they have in view."

The author's perspicacity and clearness of statement is particularly apparent in this chapter, which, although containing very little absolutely new matter, is put forward in such way as to make reading of it a pleasure.

Instinctive actions are reflexly produced and emotions are their psychical accompaniment. The analysis is made on the basis of James in his "Principles of Psychology," chapter on Emotions, and Lange—"Ueber Gemüthsbewegungen." The former a psychologist, the latter a physiologist, came independently to the position that the emotions were the mental accompaniments of reflexly produced physiological processes.

Chapter III is by far the most important part of the book and is entitled the "Field of Æsthetics." For a long time the most important and considerable contribution to æsthetics in the English language, was the "Physiological Æsthetics" by Grant Allen. It was at the best, however, but fragmentary, emphasized the sensory in æsthetics and tried to explain the beautiful as the physiologically advantageous and the ugly as the physiologically disadvantageous. This has recently been abandoned by its originator as unsatisfactory.

It may truthfully be said that this contribution from Mr. Marshall is by far the most important to the subject of æsthetics since the publication of Fechner's *Vorschule*. It is an original attempt at a clear demarcation of the field of æsthetics. In fact it may be said to be a foundation for psychological æsthetics which has for its object an examination of those objects that we call beautiful and those subjective feelings attaching to them, instead of speculating as to the nature of abstract beauty.

The author's contention is that the beautiful, is first, the hedonic, the pleasurable, and second, the relatively pleasurable in revival.

His position in reference to revival is best stated in his own words. "First, I class all that is æsthetic, which is pleasurable in revival with no painful and little indifferent tendency; in other words, the relatively permanent field of pleasure in revival is that which I call my æsthetic field; all else is non-æsthetic. What is indifferent in revival I tolerate only as an adjunct; what is painful in revival I cast out of my æsthetic field entirely. I do not always judge a work non-æsthetic because of a painful element in its revival, but I exclude that element as non-æsthetic. Second, those revivals I call hedonic and not æsthetic, to which the name "pleasure" clings in any way (either because I remember the original to have been pleasant, or because of the recognition of the employment which they bring to others), but which for me in revival are not pleasant, but indifferent or positively painful." As regards the field of æsthetic judgment, he says: "For each person the æsthetic field to which he refers in making judgments as to beauty is his relatively permanent pleasure-field of revival." The beautiful to Mr. Marshall was not an abstraction, an absolute which needs some faculty of appreciation in order to apprehend, nor is it to be found by reference to certain qualities of objects, as Burke would have it, but rather by reference to subjective feelings of pleasure.

That Hedonism in æsthetics savours of what is called for want of a better term, Epicureanism, as has been charged, the author easily disproves.

It is not within the bounds of a short book review to enter very much into specifications, but before passing from this chapter, the reviewer feels that he cannot commend too earnestly this portion of the volume to the attention of every person who would read a skillful and masterly handling of this difficult subject.

Chapters IV. and V. are taken up with the Physical Basis of Pleasure and Pain. It is impossible to enter into the details of these chapters.

Suffice it to say that to the mind of a physician the position taken by Mr. Marshall as to his conception of an organ of a content, as stated in the hypothesis which he defends, is not at all apparent. For instance, "The activity of the organ of any content, if efficient, is pleasurable, if inefficient is painful." (For a statement of Mr. Marshall's theory in his own words, which it is impossible to detail here, the reader is referred to the February number of this JOURNAL of this year). The author speaks of energy going into an organ as if it were water poured in and out of a bucket.

His theory from a physiological point of view, does not seem to the reviewer to have any good *raison d'être*. At first sight, it appears to be somewhat analogous to the known changes that go on in glands before, during and after secretion, but on closer examination this is seen to be not so.

It is quite impossible here to cite specific objections to the theory which in this volume is elaborated in all its details.

Chapter VI. is devoted to Algedonic Æsthetics, and unless one accepts Mr. Marshall's interpretation of the physical base pleasure and pain, especially of pains of restriction or repression and of excessive functioning, this chapter will not be so satisfactory as the chapter on the Field of Æsthetics, for the laws deduced are based on that theory.

The problem of this chapter is the distinctly æsthetic question, *i. e.*, what are the conditions that aroused in us the feelings that we have toward the ugly and the beautiful. Mr. Marshall has not given us a complete study of these laws. This chapter might well be expanded into a volume to fill the gap in scientific æsthetics that is apparent not only in this special literature in English, but in all other languages as well. The author has given, however, many valuable suggestions and has erected a satisfactory foundation upon which to build a future science of the principles of algedonic æsthetics.

The seventh and last chapter is devoted to a General Summary and Results, in which the author briefly and to the point indicates the matter gone over and the results as he interprets them. This he does with that lucidity of style so apparent throughout the book and to which we took occasion to refer in the beginning.

In closing this very imperfect and fragmentary notice of "Pain, Pleasure and Æsthetics," we feel called upon to congratulate the author on the felicitous manner with which he has discharged a difficult task. It can truthfully be said that there is scarcely a dull page in the whole book, and when one contrasts this with other psychological volumes, with their verbosity, their entanglement of words and cumbersomeness of phraseology, this implies no small praise.

The book must necessarily have a deep interest for physicians, and especially neurologists, for it is concerned largely with the explanation of a phenomenon—pain, the prevention and relief of which forms such a good portion of their duty. We can heartily recommend it to their personal and study.

The mechanical part of the book is in keeping with its contents—excellent.

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Original Articles.

HOW CAN WE PREPARE NEUROLOGICAL
MATERIAL TO THE BEST ADVANTAGE?

BY ADOLF MEYER, M.D.,

Docent of the University of Chicago and Pathologist of the Ill. E. Hospital for the
Insane, Kankakee.

NEUROLOGICAL studies have quite a number of peculiar difficulties.

A fair knowledge of the topographical anatomy, of physiology and pathology of the nervous systems offers about all the practitioner and clinician needs for diagnostic purposes and for the comprehension of his cases. Much of the contents of the standard works and monographs on the subjects mentioned forms so far merely crude material, waiting for the combining hand that furnishes the links for the whole chain. To study these details is too lengthy and inadequate a task for the practitioner; specialists have to step in, and it is with much justification that chairs for pure neurology have been founded in Clarke University and in the Chicago University for thorough scientific investigations, and that a few asylums in this country have their special pathologists giving all their time to these studies.

I have no doubt that many a physician has, or has had cases of great interest for neurological investigation. He would be anxious to give them a thorough study.

He makes, perhaps, an attempt, but not having the facilities and not being quite familiar with the methods and the literature, he fails to obtain a satisfactory result, and when the next case comes, he is not tempted to go through the same trouble again, as long as the prospects for the ultimate results are not better. He is not to blame for this. He needs help and somebody has to do this tedious work for him. I don't think that I overrate the interest in science of the American physician in believing that he will never mind going through the trouble of carefully preserving material, if two conditions are fulfilled: 1. If he knows an easy and safe method of preserving material, and, 2. If he can be satisfied that it will find a careful and well prepared investigator.

In the present note, I wish to give a short but exact description of the best methods of preserving neurological material and a few hints about the ways of sending specimens to a neurological laboratory. Many a physician will find a help in this; on the other hand, the success of neurological laboratories depends so largely on contributions of practitioners and clinicians that an appeal for co-operation is justified in every way.

1. PATHOLOGICAL MATERIAL.

As a rule, an autopsy should be made as soon as possible, at least within twelve hours, after death. In twenty-four hours, especially in summer, the brain may become useless.

For taking out the brain we adhere to the method which is universally used. The scalp is divided in a line which runs from one ear to the other over the vertex. The flaps are reflected together with the pericranium. The cranial cavity is opened by a circular incision with the saw, passing about 3 cm. (1") above the margin of the orbit and above the external occipital protuberance. Care is taken that the saw does not cut the dura mater. The inner table of the skull is better broken with the chisel.

The calvarium being loose we examine the skull for symmetry, note the condition of the sutures, the color and thickness of the external table, of the diploe and of the inner plate, the depth of the sulci of blood vessels, and the amount of adhesions of dura mater. I merely mention the normally strong adhesion between dura and skull in the child, which makes it necessary to remove dura and skull together with the brain.

We go over to the description of the dura: tension, color, degree of moisture; contents of longitudinal sinus; we then make a semi-circular incision of one side of dura (preference given to scissors) in order to see the inside of the dura before any blood may have soiled it; the vascularity, the moisture, and possible hemorrhages are noted; the other side of the dura is opened in the same way (following the line of section of the skull) and the inside is described.

The arachnoidea is controlled with regard to transparency, degree of moisture, vascularity, amount of adhesions to dura; for the latter purpose we cut the ant. attachment of the falx cerebri and draw the dura carefully backwards.

Now, we may proceed to the removal of the brain. We lift the frontal lobes, taking care not to tear the olfactory tracts and bulbs; and with a very sharp knife we divide the optic nerves of the pons and oblongata and finally sever the vertebral arteries and the spinal cord, taking care to make the section as little oblique as possible. No nerve should be *torn*, but all should be *cut* before the tension becomes dangerous.

The pia and the blood vessels of the basis are next examined, and for this purpose we open the fissure of Sylvius in its whole extent. After a careful review of all the superficial parts, nerves, peduncles, etc., for symmetry, etc., the real dissection may begin.

The following rule must be the guide for every dissection: A method can only be good if it does not destroy the mutual relations of the parts and moreover leaves them always in a condition which will make a

subsequent microscopical examination not merely possible, but most profitable.

Where we know with certainty what we are going to find; for instance, where we see the pyramidal tract of one side degenerated, we know that we have to try to keep the whole stem intact in order to have an opportunity for a comparison of the two sides from the medulla up to the internal capsules. But in most cases we have no knowledge of what we might find, and in such cases, routine must dictate its best plan.

Where our microtomes are sufficient to make large sections of the stem, even in the region of the corpora striata, it is no doubt best to dissect the brain after Meynert's method, because it leaves all those parts together in which we can profit through a comparison of the two sides of a section. In the hemispheres, this becomes too difficult; therefore, with the exception of a series of cases, of which I shall speak in connection with Siemerling's method, we prefer to give up this comparison and to examine each hemisphere separately.

Before beginning the description of Meynert's method we may remember the following rules:

1. Two good scalpels and two or three pairs of forceps, a thin bladed brain knife and a pair of scissors are the instruments necessary.
2. The brain substance is so soft and easily bruised, that it is to be handled with the utmost care and not more than absolutely necessary.
3. A clean cut with a sharp instrument does not do as much harm for the subsequent examination as undue pressure with the fingers and bruises and lacerations with blunt instruments.
4. We may subdivide the sections into such as will merely help us to obtain pieces of the brain that can be easily hardened and microtomitized without further subdivision, and into such as help us to discover pathological lesions.
5. The sections of routine should pass through parts which are of little interest and strictly avoid parts of

great importance. They do, therefore, not follow strictly the anatomical limits of the portions of the brain, but are chosen empirically. They should expose the important structures, but not injure them.

6. If this routine method leads us on the way to some pathological lesion, we had better leave the part intact until it is ready for preparation with the microtome. The naked eye examination has no other purpose but to decide whether subsequent examination with the microscope is necessary and profitable. As soon as this question is decided in the affirmative we should not cut any further. Hence, if we find after separating the hemispheres from the stem that there is such a lesion, we check our desire of cutting into it, and give a simple description of what we can see superficially, leaving the rest to the microtome. If we don't see any reason for such a thorough subsequent examination, we make further incisions, which we might call search sections; they must be methodical, *i. e.*, not interfere materially with the subsequent microscopical study, if such would become necessary in the end.

7. The reason for limiting the number of sections to a minimum is given by the fact that even the cleanest section destroys a certain number of histological elements; especially the white substance suffers somewhat by the protrusion of myeline, though not so much in the brain as in the spinal cord, which, on account of its narrow and unyielding coat of pia, is more apt to suffer.

8. Every sign of disease of a special part should, within reasonable limits, be a contra-indication, not an indication, for incision, as it may spoil the chances for making serial sections and a reconstruction of the whole. In the following description of Meynert's method of dissecting the brain, I shall try to revive the knowledge of those anatomical data which seem to be absolutely indispensable for the understanding of Meynert's plan. His idea is to separate the mantle of the fore-brain from the brain stem. He does, however, not follow pedantically

the anatomical limits, but he leaves the Island of Reil in continuity with the basal ganglia.

We may proceed in the following way: We open first the fissure of Sylvius in its full extent and we uncover carefully the Island of Reil and its limiting fissures. The limits of the Island of Reil form the landmarks of our dissection. It consists of a distinct triangle of short gyri, which mark, so to say, the lateral surface of the corpus striatum. The longitudinal arm of the triangle is parallel to the lateral border of the lateral ventricle; the anterior arm is nearly parallel to the gray matter of the corpus striatum, which projects somewhat into the frontal lobe, and the posterior arm is parallel to the inferior horn of the lateral ventricle.

For reasons to be mentioned below, we begin to separate first the frontal lobe from the corpus striatum. For this purpose we separate the two frontal lobes in order to uncover another guide, the knee of the corpus callosum. About one cm. behind it, we shall reach the ant. cornu of the lat. ventricle. We seize the frontal lobe, one finger in the longitudinal fissure, the other in the ant. limiting sulcus of the Island of Reil. We cut from the anterior border of the anterior perforated space, just behind the point of fixation of the olfactory tract, in a nearly horizontal direction forward until about one cm. behind the knee of the callosum we turn vertically upon the ventricle. This curve is made in order to avoid cutting into the caudate nucleus, whose head projects so far into the frontal lobe. And it will be seen that the anterior limiting sulcus of the Island indicates just the right curve for the section. If the knife goes too far forward (beyond the callosum) we risk not meeting the anterior cornu of the ventricle.

When cutting into the ventricle in the way described, we obtain information on several points:

1. The resistance which the knife meets informs us as to the toughness and tension of the ependyma, the real wall of the ventricle.

2. The amount of the fluid that escapes informs us

on the tension and the amount of cerebro-spinal fluid accumulated in the ventricle.

The frontal lobe of the other side is detached next. After this we proceed to the detachment of the temporal lobes from the brain stem. First of all we consider once more the lateral landmark, the posterior limiting sulcus of the Island. Next, we sever the union between the uncus of the temporal lobe and the optic tract, and the knife opens the inferior cornu of the lateral ventricle. The bridge between the posterior limiting sulcus of the Island and the inferior cornu being very narrow we cut it down in its whole extent. After this we lift the cerebellum with the medulla and pons, divide the pia which united the posterior border of the hemispheres and the splenium of the callosum with the cerebellum, and we thus uncover the corpora quadrigemina and the epiphysis. Cutting further, between epiphysis and callosum, we open the velum interpositum (the roof of the third ventricle) and thus enter the third ventricle.

We find the corpus callosum, the lyra and the fimbria of the fornix uncovered, and between the margin of the fimbria and the optic thalamus we see a bluish membrane extend, the pia with the choroid plexus. The latter ventricle is not open before this membrane is cut or torn.

We elevate the brain stem further, and, in a way, luxate the optic thalamus from the excavation of the lat. ventricle, so as to get access to the roof of the lateral ventricle. By severing the tissue which lies between the lateral margin of the ventricle and the longitudinal limiting sulcus of the Island of Reil, we succeed in peeling out the whole corpus striatum without injuring any of its ganglia. The only thing that remains to be done is to cut through the fornix and septum lucidum.

We have thus obtained :

1. The two hemispheres united in the middle line by the corpus callosum.

2. The brain stem including the Island of Reil.

For the examination of the hemispheres you may follow this plan:

Compare the breadth of the lateral ventricles. If one of the ventricles is distended, you find the distance from the middle line to the lateral border of the ventricle larger than on the other side (give measures in mm.)

Examine the plane of section for degeneration and compare the fornix of both sides.

Cut the corpus callosum in the middle line and ascertain whether the section shows any degenerated strands. Test the different lobes for adhesion of pia. For the inspection of cortex and centrum semiovale you divide the hemisphere. 1. Before the præcentral sulcus. 2. Behind the post-central sulcus and a superficial transverse section into the occipito-temporal lobe. In this way we obtain the motor area and the central gyri in one piece, the frontal lobe in another, and the occipito-temporal lobe in a third. Whereas additional search sections are made in a transverse direction in the frontal and occipito-temporal lobes, it is better to make them in the central lobe perpendicularly on the fissure of Rolando, in order to have a cross-section of both central gyri. The search sections must be made so that the parts are not completely severed, but may always be recognized in their mutual topographical relations.

In this part of the dissection I do not adhere to Meynert's plan, but follow more the directions of Weigert. Meynert separated the hemispheres in the fissure of Rolando and thus destroyed more or less the important relations of the motor areas.

Let us go over to the brain stem. An accurate inspection especially with regard to the symmetry of the parts should be the first thing. If there is anything abnormal in the brain stem as atrophy of nerve centres, cysts and secondary degeneration, we shall discover them in this way without injuring the stem at all. The only incision which should be generally made for facilitating the inspection, is a longitudinal section through

the worm of the cerebellum, by which the fourth ventricle is freely exposed. We inspect the convolutions of the Island of Reil, the corpora striata, internal capsules, optic thalami, the corpora quadrigemina, the fourth nerve, the fourth ventricle and the hemispheres of the cerebellum. On the basal aspect we review the optic tracts, the tuber cinereum and corpora albicantia s. mammillaria, the crura and the 3d pair, the pons with the 5th pair, the 6th; the olivary bodies and 7th, 8th, 9th, 10th, 11th, and 12th nerves. Search-sections, if necessary, are made in planes which are exactly perpendicular on the axis of the brain stem. As an anatomical guide in the dissection and topography of the brain stem, I should recommend the splendid atlas of Bruce; for the anatomy of the fore-brain, I have to refer the reader to one of the text-books, the first part of the third volume of Quain's Anatomy (edited by Schaefer), or Edinger or Obersteiner.

It is advisable to measure the cerebro-spinal fluid, which escapes during the dissection of dura and brain, and to weigh the parts of the brain: the hemispheres, the stem and cerebellum. The brain is then put at once into a large quantity of Müller's fluid (two or three gallons) on several layers of filtered paper. The fluid should be changed the 2d, 4th and 7th days, and afterwards once a week. The first few days the brain substance becomes rather soft and should not be manipulated at all; it is, therefore, advisable to change the Müller's fluid with a syphon arrangement. In the third or fourth week the brain contains a consistence which is very good for dissection. The tissue elements are sufficiently fixed; protrusion of myeline is scarcely observed, and a section made at this time will remain smooth. It seems to me that this is the best time for transportation. For this purpose a tin pail is made, slightly larger than absolutely necessary for the bulk of the brain, which is enveloped in absorbent cotton. The pail is filled up with Müller's fluid, the lid is soldered and the pail packed in a box of wood.

The essential points in the preservation of entire or dissected brains are the following: Müller's fluid is the best hardening fluid, in fact, the only one that comes into question,

It consists of bichromate of potash, $2\frac{1}{2}$ parts; sulphate of soda, 1 part; distilled water, 100 parts by weight; best made about six days before use and then filtered. It should be prepared in large quantities and not be used too economically.

Brain substance should never come into contact with water.

When entire brains (for the study of convolutions, etc.) are preserved, the pia matter should be removed, because this facilitates the impregnation with Müller's fluid. Where a microscopical examination of the cortex is necessary, the pia should *not* be removed; but numerous incisions with a sharp knife should prepare free openings to the hardening fluid.

A few words on other methods will characterize my position to them. The method recommended by Blackburn is based on the general rule that all cavities should be opened and inspected before actual section of the part. This advice is good in some respects where the ventricles are of great interest for the pathology of a certain brain, for instance, hydrocephalus, but even there, the unavoidable mutilations, for instance, of the mid brain, is not worth the plus of insight into the cavities; the brain substance will always be the most important thing of the brain, and the ventricles are to be sacrificed, if necessary. This does not, however, occur with Meynert's method. With the exception of the aqueduct of Sylvius, which, from a pathological point of view, is of no importance compared with the surrounding tissue, all the ventricles are freely opened; moreover, we get a very good idea of the pressure within the lateral ventricle, if we open it first in the frontal lobe, not as Blackburn advises in his description of Meynert's method, from the transverse fissure, where we are very apt to open in the same time the third ventricle. Blackburn

separates the brain stem above the pons; the upper portion is divided in the middle line, and the mid-brain, the regio subthalamica and other important regions are lost for comparative study of the two sides. This is a very serious objection for those who wish to study more the course of degenerating tracts than the mere untopographical histology of pieces of brain substance. Meynert's method gives us a good chance for both. A simpler method, which might be especially recommendable where the symmetry of the parts is of great importance, is the one proposed by Siemerling. After a careful inspection of the surface and of the vessels, the pia is examined for adhesions, then the brain is divided into frontal sections with a brain knife, beginning at the frontal pole. The sections should not be too thin, because it would be too difficult to make them equal on both sides. It is best to cut from the basis towards the convexity, as it is easier to ascertain the exact localization. S. chooses the following points: 1, directly behind the knee of the callosum; 2, before the chiasma; 3, immediately behind it; 4, through the corpora albacantia; the splenium of the corpus callosum is then divided in the middle line and the brain stem is detached; each occipital lobe is examined apart, and the brain stem may be preserved for microscopical examination.

This method may be recommended instead of Blackburn's, where the pathologist does not care for making the decidedly far more elegant and instructive dissection after Meynert, for instance, in general hospitals, in cases where no brain lesion can be expected. In cases of brain disease it may be justified by tumors, but even there the chance of easy comparison of the symmetry of the brain-mantle is paid too much for, as the basis, the subthalamie region, is too badly injured.

Virchow's method had better be altogether abandoned, as it slices the brain nearly regardless of anatomy and localization and destroys every chance of a microscopic examination.

Hamilton's method of injecting the brain with

•Müller's fluid is certainly excellent; but on the whole, it will require too much space and attention and give no insight into the fresh brain at all.

What brains are worth a thorough microscopic examination? Fresh and old local lesions of any part of the brain make the whole brain interesting on account of the secondary degenerations. In old standing cases of hemiplegia some of the most important facts have been found the last year, for instance, the sensory tract that runs from the nuclei of Burdach and Goll, as far up as the motor area.

Another point worth study would be the degenerations in cases of aphasia, and in localized lesions of any part of the brain.

Difference in size of any two symmetrical parts of the brain may give a key to the topographical study of these connections.

Atrophy of one or more cranial nerves is always of the greatest interest, because there is considerable confusion in the literature with regard to the origin of the facial, and of other nerves; moreover, every brain of a microcephalic individual, of idiots, of members of rare races (Indian, Asiatic tribes, negroes, etc.), has an interest for the study of the convolutions and should, partially deprived of the pia, be preserved as a whole.

The *spinal cord* has been made the subject of such an interesting study by Dr. Ira van Gieson, that I need hardly give a long description of the post-mortem examination of this organ. The removal of the cord is the most distressing part of an autopsy; if it is not done properly, numerous and very misleading mutilations of the cord may make a subsequent study impossible. Every method has a danger of causing bruises of the cord, before all those methods which allow the application of much force, such as the use of the chisel and of huge bone shears. Dr. van Gieson is right to insist on the use of a single-bladed (or double-bladed) curve-saw, and on dividing with it as much as possible of the vertebral arches. If the normal lordosis of the spine in the

lumbar and cervical region is corrected by sufficiently high logs of wood, it should not be too difficult to perform the operation with approximate accuracy. The incompletely sawed laminæ may be divided with not too bulky shears, such as we use for the ribs. In removing the spinal processes there is always a danger of using pressure on the dura which may cause diffuse bruises of the cord.

In removing the cord we have to avoid bending, twisting or stretching it too severely. For this purpose we avoid touching the cord altogether and seize the dura, keeping it straight under moderate tension. Much discretion should be used in making transverse sections of the cord. If it is very soft or where we discover at once on the surface some abnormality, sclerosis or gray degeneration, this should be an inducement to let the cord alone, to hang it up together with the dura, carefully, in a glass tube containing Müller's fluid. It is always much wiser to make transverse sections only after the tissue is sufficiently fixed, because with the fresh cord the myeline is pressed out, however sharp the knife may be. Where nothing abnormal is suggested by mere inspection, transverse incisions must be made with the utmost discretion. The spinal cord should never be put into the same jar with the other organs.

I should not warn particularly against longitudinal sections of the cord and bulb, if I had not seen precious material practically destroyed in this way by well meaning but badly informed physicians.

In order to mail a cord it is safest to keep it in an abundant quantity of Müller's fluid for about three weeks, then make a sufficient number of transverse sections, leaving the dura intact (for orientation), curl it up in a loose spiral, surround it with cotton, and mail it in Müller's fluid.

It is scarcely necessary to add that every piece should be carefully labelled. Cords of special interest, besides general paralysis, tabes, etc., are those of amputated (amputation of humerus or thigh), jongleurs, etc.

2. EMBRYOLOGY.

Partly in the range of pathology, in the subdivision of teratology, we find a great number of specimens that should come into the neurological department instead of being abandoned to the bacteria of putrefaction, those monsters which often furnish most suggestive malformations of the nervous system, anencephalus, spina bifida, etc. It is evident that these abnormalities require a well trained student if the material should be properly used.

But also the ordinary material, the nervous centres of children from two years back to the new born, the foetus of 9, 8, 6 months; well, every stage of the foetal development opens a wide field for investigation.

Whereas in the strictly pathological portion of neurology, lunatic asylums, poor houses and general hospitals, furnish the greatest number of cases, this part is largely depending on the benevolence and interest of the practitioner.

First, a few remarks on the youngest stages of embryo:

The scientist cannot help having a feeling of gratitude towards members of the profession who come to assist by furnishing material of this kind. These specimens cannot be obtained for money; but we depend altogether upon the kindness of the physician. Now, everybody knows the difficulty in obtaining those small forms, often expelled in blood clots, often hidden by the people and often too far destroyed by putrefaction. We need not wonder at the physician who was successful to obtain a fine specimen and then wishes to keep it, to withhold it from the microtome; still, I have no doubt there are many who wish to contribute their share to scientific investigation, if they just knew how to dispose of the material. It is remarkable what collections Prof. His could make in the small city of Basle, a place of about 40,000 inhabitants, where abortions are relatively much rarer than in this country. Following the great experience of His, I wish to give the following rules for

preserving embryological material. Embryos of the first two months: Whatever the condition of the material may be, it may be too old, torn, spoiled by blood, it still may be of value in some way and is worth being preserved (malformations are very frequent, especially in the expelled foetus). The specimen should not be washed; water spoils it; for fixation it is put into a 10% solution of nitric acid for about fifteen minutes; then it is preserved in 60% alcohol. This same method may be sufficient for embryos of three and four months, but it will be advisable to open the skull carefully in order to give access to the fixation fluid.

In specimens of the fourth month, we find the first development of medullated sheaths. This gives a strict indication for the use of Müller's fluid; the skull should be carefully opened, and also the spine in several places, carefully avoiding bruises of brain and cord, and the specimen is put into an *abundant* quantity of Müller's fluid. The latter should be changed on the 2d, 4th and 8th day. In three or four weeks the specimens can be mailed in a wide-mouthed bottle or tin box. The stages from the 5th month upward are exceedingly important, and also the brains and cords of children up to three years, because of the relative simplicity of the structure.

SOME MEDICO-LEGAL ASPECTS OF APHASIA.

By THEODORE DILLER, M.D.,

Pittsburg.

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IT seems strange that in view of the voluminous literature which has sprung up on the subject of aphasia, there should be so little said about the medico-legal problems which arise in connection with it. I present these fragmentary ideas on the subject in the hope that they may be of some little help to those who may have these problems presented to them and that they may lead others to speak on this important but very difficult subject.¹

In considering the medico-legal problems which may arise in any given case of aphasia it is necessary to determine:

1. Whether the person is sane.
2. Whether ideas can be conveyed to him.
3. Whether he can convey his ideas to others.

In such a study neither the site of the lesion nor the particular division or sub-division of aphasia present need be considered. If it can be shown that an aphasic is sane and that ideas can always be conveyed to him, and that he can, in some manner, unmistakably and invariably convey his ideas to others, it must be concluded that he is competent to make any civil contract.

Ordinarily, in the absence of distinct evidence to the contrary, it may be assumed that the aphasic is sane. In

¹ The most exhaustive monograph on the subject is, so far as I know, that of Mills (*Review of Insanity and Nervous Disease*, December, 1891). Others who have contributed to the subject are Clark (*Proc. Amer. Medico-Psychol. As.*, 1892), Jackson (*Med. Rec.*, August 31, 1889), Hughes (*Alieni. and Neurol.*, July, 1880), Bastian (*Brit. Med. Jour.*, Vol. II., 1887, p. 934), Lichtheim (*Brain*, January, 1885), Ross (*Aphasia: Wood's Med. and Surg. Monthly*, April, 1890, New York).

motor aphasia accompanying hemiplegia, which is the clinical type most frequently seen, the sanity is usually so patent as to be apparent even to relatives and friends of the affected person.

In sensory aphasia (word-blindness, word-deafness, apraxia) there is a far greater simulation of insanity. Indeed, it is not unlikely that some such cases have, even by medical men, been accounted insane when there was no real insanity. Yet in all cases which have to be considered by the medical jurist the presence of sanity should be established by direct evidence rather than be assumed by negative evidence, although the burden of proof will generally lie with those who maintain that an aphasic is insane. Mills,² Ferries, Hughes, Bastian and Clark,³ concur in the view that motor aphasia does not, of necessity, incapacitate the individual. This view will, I think, be generally accepted. Yet, the lesion which causes aphasia must, I believe, be considered as a more or less strong predisposing cause of insanity or mental enfeeblement, just as is the brain condition which produces epilepsy. I have myself seen aphasics pass by slow, imperceptible degrees into dementia.

Not long since, I was called upon to give an opinion in court in a will case. A retired physician, aged sixty, was, one day, seized with a sudden attack of unconsciousness, recovering from which he was found to be hemiplegic and aphasic. Yet, for a few years after the onset of his trouble, he conducted a large business, kept his books correctly; indeed, increased his fortune considerably.

The plaintiffs endeavored to break the will on the ground that whatever his mental condition was immediately after his attack, he had deteriorated mentally and was, at the time of his death, and for some few months preceding it (during which time the will was made), technically insane and incompetent. Witnesses testified

² Aphasia.—*Review of Insanity and Nervous Disease*, December, 1891, p. 164.

³ Proceedings of American Medico-Psychological Association, 1892.

that at the time the will was made his conduct was altered and in many ways peculiar. Shortly before, or after the will was made, a neighbor who called on him to collect a bill amounting to a couple of dollars was tendered by him, in payment, a roll of bills "as thick as the arm." The case was settled before it went to the jury. My own opinion was, that there had probably been some progression toward dementia, but not enough to render him irresponsible at the time he made his will. In fact, a will made by him some years before his attack of aphasia, and which almost tallied with the contested will, was sprung in court by the defendants, and caused a speedy termination of proceedings.

It is well known that some degree of mental impairment usually follows cerebral apoplexy and that this, in many cases, advances into actual dementia; and inasmuch as apoplexy is by far the most frequent cause of aphasia, we may look for mental failure after an attack of aphasia with about the same frequency with which it is to be noted after apoplexy unaccompanied by aphasia. The minor degrees of mental failure, such as slight loss of memory, impairment of judgment or perception which may accompany aphasia, cannot be held to render the individual technically insane. There must be, to constitute insanity, a degree of mental or emotional failure or perversion sufficient to cause a line of conduct in the individual clearly at variance with that prior to the onset of the affection. A slight dementia or mental failure is not enough.

It would unduly prolong this paper to enter into the various tests by which sanity or insanity may be established in aphasia. Suffice it to say, that the ability of all the cortical sense areas to correctly register percepts and of the psychical areas to correlate them and form concepts should be tested. Likewise, the ability of the individual to communicate ideas by means of speech, writing or signs.

Assuming an aphasic to be sane, then the queries arise: Can ideas be conveyed to him? Can he convey

his ideas to others? If neither of these can be done, it would seem, on the face of it, that the individual were insane. Yet I can conceive how such a person might be in such a condition and still, from one standpoint at least, be considered sane. For example, he might be able to take care of his life and health and be harmless to himself and others so that it would be wrong to deprive him of his liberty by placing him in an asylum. But when we come to the question of competency with regard to signing contracts, wills, checks, etc. (the civil aspect of the matter), the aphasic must be considered incompetent and technically insane unless he can both receive ideas from without and convey his own ideas to others. This may be accomplished when but a single line of communication is open both ways. For instance, a sufferer from both sensory and motor aphasia having only one path by which he can comprehend ideas (*e. g.*, the ear), and only one method (*e. g.*, gestures) by which he can communicate ideas may be competent to execute a will or other legal document.

Gowers⁴ says testamentary capacity "must depend, in any given case, on the ability to understand perfectly what is put before the testator, and to express, at least, assent and dissent *with certainty*."⁵

This proposition is substantially the same as that I have just made. But I must agree with Mills⁶ in dissenting from the opinion Gowers⁷ expresses in this sentence: "Word-deafness is incompatible with will-making, because it is impossible to know whether the testator really understands what is said to him." Uncomplicated word-deafness ought to present few difficulties. For the individual could comprehend written or printed language and communicate his own ideas either by speech or in writing. For similar reasons pure word-blindness would not render the aphasic incompetent.

⁴ Diseases of the Nervous System, Vol. ii., p. 125.

⁵ Italics mine.

⁶ *Loc. cit.*

⁷ *Loc. cit.*

But given a case in which both word-deafness and word-blindness existed, ideas might still be conveyed to the individual through pantomime, and the senses of touch, taste and smell, but he could not be made to comprehend the nature of a legal document through these channels and would certainly be incompetent to execute a will.

In testing an aphasic very varied tests should be employed. For he might comprehend certain written or spoken words and figures and fail on others. The only certain way of knowing that he comprehends ideas propounded to him is to receive from him written, spoken or gesture repetition of the idea, or else an intelligent or expected action in response.

In conclusion, I will relate a particularly puzzling case I examined some few months ago.

A lady (about sixty-five), possessed of a considerable estate, the management of which she personally attended to, was one day stricken down by a cerebral hemorrhage and she suffered, in consequence, from right hemiplegia and almost complete motor aphasia. Apparently, her reasoning faculties were but little, if at all affected. She could comprehend some, but not all ideas presented to her by speech or writing. In turn, she communicated many ideas to others by means of the gesture language and the few words which still remained at her command. As is so often the case, the paralysis of the right arm precluded attempts to ascertain the existence of agraphia. There seemed to be no sensory aphasia. In the course of a few weeks she made some slight improvement—regained the use of a few more words. At the same time, the members of her family came, through study, to appreciate better and more readily her sign language. In the meantime her business interests began to suffer, owing to her inability to sign certain papers and her doubtful understanding of contracts, etc. I was asked for an opinion as to whether she was competent to continue the management of her business affairs. I made several examinations in which I applied many and various tests to determine her sanity and her ability to

comprehend and express ideas with certainty. As the result, I became convinced that she was sane and that while she comprehended and expressed clearly enough certain ideas, she just as clearly failed to comprehend or express others. In some instances, her failure to express ideas disappeared as I began better to understand her gestures and the meaning she placed on the few words she employed. One test which I made, I will relate as I considered it a very important one as bearing on her case. A two, five, ten and twenty dollar bill was placed before her. She was told to pick up the five, twenty or two dollar bill and hand it to one or another of the persons about her. In any case in which she failed to pick up the bill named or hand it to the person designated, the requests was presented to her in writing. Generally she did correctly what was asked of her, but not always. These tests were again and again repeated, but never without eliciting several failures. I finally arrived at the conclusion that she was incompetent to enter into civil contracts, and in a technical sense, insane. The family naturally disliked the idea of having a commission declare her insane. Her lawyer suggested that she might be able to delegate to some one the power of attorney. So the matter was explained and laid before her. She was asked to appoint some one. She designated two of her children. She was asked several times, on different occasions, to delegate to some one the power of attorney. She always by unmistakable signs designated the same two children she had indicated the first time she was asked. I concluded that she certainly made this designation understandingly. The two children referred to were subsequently duly authorized to use the power of attorney.

It is likely that she would have been able to have given intelligent assent to many single business propositions presented to her; but in view of the tests I had made, I felt confident that she was incompetent to receive and pay out money constantly as had been her custom before the apoplexy and as her business required.

WESTINGHOUSE BUILDING.

SELF-INFLICTED INJURY IN A CASE OF CHRONIC MANIA, FOLLOWED BY A CEPH- ALHÆMATOMA, FACIAL ERYSIPELAS, IN- CISION INTO THE BLOOD TUMOR AND A LUCID INTERVAL.

By CHAS. B. MAYBERRY, A. M., M. D.

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CASES illustrating the influence of acute bodily disease upon the course of mental affections are numerous, and have probably come within the experience of every asylum physician, and were the case to be considered one simply showing the modifying effect of facial erysipelas in some cases of insanity, it might not be of sufficient interest to call for a report. There are, however, certain features in the history of this patient which make the case one of unusual interest. Besides the acute bodily disease there are other elements, which play an important part, in the causation of the lucid interval which follows, and whatever the more essential element may have been in the production of the cerebral change which resulted from the combination of these influences,¹ whether a counter-irritating effect of the erysipelalous inflammation, or grosser circulatory changes from actual hemorrhage and a diminished arterial tension, the result was a change from hopeless mental oblivion to a period of enjoyment of the normal action of the faculties of the mind.

In order that the nature of the case may be thoroughly understood, in giving the clinical history, I propose to consider: 1. History before admission, including the family history, habits and probable ætiology. 2. History from time of admission to the date of self-inflicted injury. 3. From the latter period through the lucid interval. 4. Subsequent history.

¹ McKennan, "Erysipelas as a Counter Irritant." *Pittsburgh Medical Review*, March, 1887.

1. T. D., male, born in Ireland, resides in Lycoming County, Pa.; by occupation a lumberman, single, and in indigent circumstances. Has usually enjoyed good health, never having been sick, with the exception of the ordinary diseases of childhood and an attack of gonorrhœa, resulting in stricture, a few years ago. The previous habits include the use of alcohol and excessive venery. Family history shows no insanity, nor is there any known predisposition to nervous disease. A history of tuberculosis is found on both the paternal and maternal sides, and uncles, aunts, brothers and sisters have died of phthisis.

Naturally of a fair intellectual capacity, he became insane in 1884, and for more than two years was treated in a hospital for the insane. He eloped, however, and for a few months he remained at home, although never at any time during this period was he rational. The symptoms have been those of mania, with hallucinations, illusions and delusions. Usually marked emotional exaltation, with sometimes noisy, incoherent talk, dancing, singing and laughing without cause; sometimes, although the face showed exaltation, there was reticence and suspicion, and in both conditions he was often homicidal. Has had the delusion that he was a priest, and, acting upon this belief, he several times tried to say mass in church. The hallucinations and illusions were shown by his actions. The assigned cause of insanity was the excessive use of alcohol.

2. Admitted to the State Hospital for the Insane at Danville, Pa., April 23d, 1887. *Æt.* 45. At this time, his physical health seemed fairly good, although he was thin in flesh; pulse 72, full and soft; tongue moist; bowels regular; skin normal; two scars on the forehead, one just above the supraorbital ridge and the other one inch and a half above it, both evidences of old scalp wounds, and both freely movable over the calvarium; pupils equal in size, and react to light and accommodation; reflexes normal; no evidence of specific disease. Mental condition is one of exaltation, not differing essentially from that existing before admission; memory seems much impaired, even when attention can be secured; talks incoherently; delusions of an exalted nature, aural and visual hallucinations; frequent attacks of noisy excitement.

In January, 1889, his bodily condition remained the same, but mentally there were evidences of more decided

deterioration, suggesting the approach of a terminal dementia. He was then very filthy in his habits; unable to care for himself; required assistance in dressing and undressing; no power of attention; memory very weak; unable to recognize friends, and shows no emotion upon seeing a sister from whom he has been separated for years; emotional exaltation but slightly marked; excited spells much less frequent than formerly, and more aimless; laid about the ward without interest in anything, and apparently oblivious to his surroundings.

3. During the night of January 28, 1889, he injured his head by striking it against the wall of his room, apparently from a suicidal impulse, breaking the skin and lacerating the tissues. As a result of this violence a cephalhæmatoma immediately formed, about half way between the middle of the sagittal suture and the squamous suture of the left side, and in thirty-six hours facial erysipelas started on the nose. The erysipelatous inflammation was superficial, but it extended over the face and the right side of the scalp and part of the left side, not, however, taking in the area of the hæmatoma. The constitutional disturbances were marked by great physical depression, and a temperature ranging from 100°F to 103°F. The course of the disease was about ten days in duration, ending favorably without intracranial complications. During this time the blood tumor was gradually increasing in size, and although aspirated several times and its contents almost entirely removed, more active interference during the course of the erysipelatous inflammation not being considered advisable, it quickly refilled.

On February 9th, it extended over most of the area, included between the sagittal and the left squamous and left sides of the coronal and lambdoid sutures. The pressure within being great, with a constant tendency to increase the area of the tumor, and absorption being out of the question, the patient was etherized at 10 P.M. and an incision was made the entire length of the tumor from before backward. A large amount of blood was removed, followed by severe hemorrhage from several branches of the left temporal artery, which were unusually large, evidently the source of the blood in the hæmatoma.

The hemorrhage was stopped by twisting all bleeding branches, and the wound dressed antiseptically with the expectation of healing by granulation. The patient

reacted slowly from the ether and was still somewhat dazed and confused, when left in the care of a night nurse. In his report, the nurse states that patient slept well during the night and awoke at 6 A.M., in the condition in which I found him later in the morning. At 9 A.M. the condition of the wound was good, but slight capillary oozing having occurred during the night. On entering the room, I was surprised to receive the greeting of good morning from him, and to see in the place of the vacant and stupid countenance, an expression of intelligence. The mental condition, which had been as usual the previous evening, had changed completely. He asked how long he had been sick; remembered striking his head, and said he had done so with a vague idea of removing something from it which was troubling him, and ought to come out; memory for incidents previous to his insanity was good, but most of the long period of mental confusion was entirely blank to him, although the real of the first period and the false of the second were not entirely distinguished by him; mentioned friends, places, work done and associations, of fifteen years before; inquired with affectionate solicitude for a sister whom he recollected as seen only years before, although she had visited him only a few weeks previous to this time; emotional condition seemed to differ but slightly from normal; affection for his family, hitherto absent, was natural; and in many other ways he gave evidence of a nearly rational condition. His condition at this time suggested to me that sometimes seen in the febrile delirium of acute disease, when delirium has ceased, but a jumbling together of the real and the false, and an indistinct memory of the imaginary suggests a slight remaining mental confusion, to be cleared away only by a systematic rearrangement of ideas, a separation of the shadowy memories from the actual existences. This remaining confusion soon disappeared, and he was removed to a convalescent ward.

From this time, the course of the case was one of gradually increasing physical strength and mental stability. He gained in weight, color improved, and his appearance was that of rapid convalescence from acute disease. One of his first acts during this period was to write to his sister, telling of his improvement, and expressing the hope that he might soon be entirely well and return to his home.

He spoke with gratitude of the care he had received

in the hospital (with other things, certainly an important indication of mental health, and one very refreshing to the physician). Most of his time was spent in reading, writing, playing games and doing work about his ward. During this entire period he was seen frequently by an eminent alienist, the late Dr. S. S. Schultz, for more than twenty years superintendent of this hospital, and pronounced by him, after the most careful study of the case, as apparently sane, and, but for the previous history and unusual character of the case, would doubtless have been discharged restored.

In this condition the patient remained for about three months, when a gradual mental change was noticed. The first thing to suggest its approach, was a complaint from the patient that he had hallucinations of sight and hearing, at first corrected by mental action and disbelieved as improbable. Then reticence followed by mental depression, showing that the mind, no longer able to correct these hallucinations, was under the control of the resulting delusions. From this condition the deterioration was rapid. He became careless in his dress and person; incoherent in talk; peculiar in actions; noisy excitement and violence followed in quick succession. Two weeks from the beginning of the change, he was in seclusion.

4. Since the relapse from his rational period, there has been little of interest in the history of this patient. After the acute exacerbation, he slowly developed a condition similar to that at the time of admission, but even at the present time, five years after his lucid period, he has not reached a condition so suggestive of terminal dementia as previous to that period, his condition being clearly one of chronic mania.

During these five years he has been bodily well, and has suffered no injury of the head, although he has several times attempted to injure himself.

To sum up the case briefly: A man, *æt.* 45; insane for more than five years (chronic mania with approaching terminal dementia); and without a lucid interval during this time, has an indistinct feeling of distress in his head, and causes a head injury from which a cephal-hæmatoma results, soon followed by facial erysipelas, involving most of the face and scalp, but not including the area occupied by the blood tumor. At the termination of the erysipelatous inflammation, an incision is made

into the tumor, followed by marked hemorrhage and in a few hours a rational mental condition is established.

The lucid period lasts for three months, then an acute exacerbation introduces another long period of mental confusion, now five years in duration.

There are several points of interest to me in this case: 1. The different elements which were instrumental in the production of this mental change.

Injuries of the head have apparently inaugurated a change toward improvement in mental disease, many times. Talcott² reports a case in which a blow upon the head was followed by lucidity in a few hours. Whatever the *modus operandi* in producing this effect may be, whether a readjustment of the molecular arrangement, or complicated cellular changes, it would seem that its connection with this case was too remote to be of importance, two weeks intervening between the injury and the result.

Hæmatomata of non-traumatic origin are unfavorable elements in prognosis, because of the morbid conditions which their occurrence indicates, although acute cases may recover after they have occurred, as in the case of an insane criminal reported by MacDonald.³ Hæmatomata of an entirely traumatic origin, however, would not thus be unfavorable. The influence of the occurrence of a cephalhæmatoma of this nature would seem to be limited to the possibility of turning the mind from a morbid introspection, to a more healthy contemplation of the outside world, but in our case the mental condition is so far deteriorated as to make this improbable. The hæmatoma *per se*, therefore, could hardly be an important element, although the circulatory changes, induced by the escape of so large an amount of blood from the vessels, might produce a modification of the physical conditions within the cranium.

The modifying influence of facial erysipelas in my experience has been almost entirely confined to cases of

² *American Journal of Insanity*, July, 1888.

³ *JOURNAL OF NERVOUS AND MENTAL DISEASE*, February, 1887.

a depressed character, and very marked, only in cases of less than two years' duration. Dinter⁴ reports two cases of melancholia with erysipelas, one of whom went on to recovery, the other was improved only for a single day and then returned to the former mental condition. Cases similar to the first of these seem to be most common.

In an epidemic⁵ of forty-four cases of facial erysipelas, during the winter of 1888 and 1889, in this hospital, the results of the disease upon the mental condition were as follows: Three were cases of acute melancholia, one of whom went on to a rapid recovery, one slowly improved from the time of the disease and one remained unchanged; the two former were simple melancholia, and the latter melancholia agitata. Nine were cases of chronic melancholia, two of whom were temporarily improved, in one, a case of melancholia agitata, the delusions were more marked and the agitation greater, and six remained unchanged. One was a case of stuporous insanity which seemed to begin to improve from the date of the sickness. Four were cases of acute mania, all of whom remained unchanged. Eleven were cases of chronic mania, one of whom had a lucid interval (the subject of this paper), the other ten were not appreciably affected. Three were cases of paretic dementia, two of whom showed greater deterioration, and one remained unchanged. Two of epileptic mania remained unchanged.⁶ One of senile dementia became mentally weaker. Ten of terminal dementia showed no change. In this series of cases, therefore, with two exceptions, all favorably influenced were of the class of melancholia. From these and similar observations on other cases, I am led to believe that erysipelas is more likely to influence favorably depressed cases of insanity of a com-

⁴ *Centralblatt für Nervenheilkunde*, February 15, 1889.

⁵ Origin of epidemic supposed to be the over-crowding of the wards.

⁶ In one, Status Epilepticus occurred. One of a series of twenty cases of "Status Epilepticus," *JOURNAL OF NERVOUS AND MENTAL DISEASE*, July, 1891.

paratively short duration. (I would say, however, that in an epidemic⁷ of another character the results were somewhat different). The importance of erysipelas in this case, therefore, does not seem to me to be as great as it would have been had the nature of the mental trouble been different, and, moreover, the improvement was not a gradual one extending through the course of the disease, nor did it begin at its termination, and while it was undoubtedly an element in the causation, it was not the only one.

There remains to be considered the operation. This involves two features: *a*. The operation *per se*, with the attending shock, which must have been of very slight importance. *b* The loss of blood, with the resulting circulatory changes. The disrepute into which bleeding in insanity has deservedly fallen, as shown by the writings of such authorities as Pinel, Esquirol, Pliny Earle and Bucknill and Tuke, would seem to preclude the possibility of a beneficial influence resulting from it, and especially would this seem to be the case in a patient of this character, in whose condition not a single indication for depletion could be found. The mental change, however, followed after the hemorrhage, and without intending to follow too closely the *post hoc ergo propter hoc* argument, I am forced to believe that arterial hemorrhage was a factor in the production of this result in this particular case. Whether it was a simple removal of blood with general diminished arterial tension, or a proper readjustment of circulatory conditions within the cranium, or in some other manner, it would seem that this condition was partially responsible for this effect. I would conclude, therefore, that this result was brought about by a combination of influences, the method of working of which it would be difficult to explain.

2. The absolute return to mental integrity would suggest an absence of those atrophic and degenerative changes of the cerebral cortex, usually found in cases of

⁷ One hundred and four cases of dysentery among the insane, State Hospital, Danville, Pa.

chronic mania and terminal dementia. Would they have been found had the opportunity for post mortem examination occurred?

3. The sudden occurrence of the lucid interval, with five years before and five years after, without any suggestion of a normal period.

4. The extent to which a mind may be deteriorated, and the length of time which this may exist, without precluding the possibility of a restoration, for a time at least, to a rational mental condition.

5. The subjective condition which led to self mutilation as expressed by the patient's desire to get rid of something (perhaps pressure) within the skull. Was his purpose accomplished?

6. The method of return to his former mental condition by the acute exacerbation, its inception being by hallucinations, first controlled by, and later controlling the mind, as indicated by his talk and actions.

7. Finally, without wishing to generalize from this particular occurrence, the question naturally arises, would the same conditions, artificially produced, again result in a mental restoration *ad integrum*?

Three Cases of General Paralysis in Husband and Wife.—Dewey (*Chicago Medical Recorder*, Oct. 1893). As a contribution to the relationship between syphilis and the development of general paralysis, Dewey has recorded three cases in which a husband has contracted syphilis, and subsequently became insane with general paralysis, and the wife, with or without known syphilitic infection, has also subsequently followed her husband to the asylum with the same fatal disease, J. C.

Forensic Medicine.

BY MATTHEW D. FIELD, M.D.

New York.

Minnesota Insane Legislation.

(CONCLUDED.)

The law pronounced unconstitutional.

STATE ex rel. BLAISDELL v. BILLINGS, Sheriff.

(Supreme Court of Minnesota. Jan. 25, 1894.)

CONSTITUTIONAL LAW—"DUE PROCESS OF LAW"—
INQUISITION OF LUNACY.

1. "Due process of law" requires an orderly proceeding, adapted to the nature of the case, in which the citizen has an opportunity to be heard, and to defend, enforce, and protect his rights. A hearing, or an opportunity to be heard, before judgment, is absolutely essential.

2. Certain sections of chapter 5, Gen. Laws 1893, which prescribe the course of procedure, and authorize the commitment of persons to public or state, and to private, hospitals for the insane, are invalid because in conflict with those provisions of the state and the federal constitutions which forbid that any person shall be deprived of his life, liberty, or property without "due process of law."

(Syllabus by the Court).

On rehearing. Affirmed.

Abstracts from the opinion.

"Our system of jurisprudence has always recognized, which not even the legislature can disregard, in proceedings by which a person is deprived of life, liberty, or property, and one of these is "notice before judgment in all judicial proceedings." In commenting upon the difficulty of defining these words, it has been said that it is wisdom to leave the meaning to be evolved by the grad-

ual process of judicial inclusion and exclusion, as the case presented for decision shall require. *Davidson v. New Orleans*, 96 U. S. 104. But it may be stated generally that due process of law requires that a party shall be properly brought into court, and that he shall have an opportunity, when there, to prove any fact which, according to the constitution and the usages of the common law, would be a protection to him or to his property. *People v. Board of Supervisors*, 70 N. Y. 228. Due process of law requires an orderly proceeding adapted to the nature of the case, in which the citizen has an opportunity to be heard, and to defend, enforce, and protect his rights. A hearing, or an opportunity to be heard, is absolutely essential. "Due process of law" without these conditions cannot be conceived. *Stewart v. Palmer*, 74 N. Y. 183. It follows that any method of procedure which a legislature may, in the uncontrolled exercise of its power, see fit to enact, having for its purpose the deprivation of a person of his life, liberty, or property, is in no sense the process of law designated and imperatively required by the constitution. And while the state should take charge of such unfortunates as are dangerous to themselves and to others, not only for the safety of the public, but for their own amelioration, due regard must be had to the forms of law and to personal rights. To the person charged with being insane to a degree requiring the interposition of the authorities and the restraint provided for, there must be given notice of the proceeding, and also an opportunity to be heard in the tribunal which is to pass judgment upon his right to his personal liberty in the future. There must be a trial before judgment can be pronounced, and there can be no proper trial unless there is guaranteed the right to produce witnesses and to submit evidence. The question here is not whether the tribunal may proceed in due form of law, and with some regard to the rights of the person before it, but, rather, is the right to have it so proceed absolutely secured? Any statute having for its object the deprivation of the liberty of a person cannot be upheld unless this right is secured, for the object may be attained in defiance of the constitution, and without due process of law.

* * * * *

"If personal rights are of any consequence, and if they need protection at any time, such notice should precede the examination, not follow it. But, aside from this

serious defect in the law, it will be seen that there is no provision which assures to the accused a trial at any time, either before or after notice, under the forms of law; no provision which guarantees to him a judicial investigation and a determination as to his sanity. The officer before whom the inquiry is pending is nowhere required to conduct his examination with the least regard to the rights of the person charged with being insane,—his right to exercise his faculties without unwarranted restraint, and to follow any lawful avocation for the support of his life. Nor is the officer obliged to hear a particle of testimony, although he is at liberty so to do.

* * * * *

“As we have shown, the statute is so contracted that the opportunity to be heard in defence is not guaranteed to the person charged. It is not framed so as to compel a hearing before condemnation or a trial under the general forms of law, before judgment is pronounced.”

COLLINS, J.

What can be done with patients under the decision?—Trustees and superintendents apply for information.

Opinion of the Attorney General.

The practical effect of the decision of the Supreme Court is to invalidate all commitments made pursuant to chapter 5, general laws 1893. It, therefore, follows that the superintendents of the hospital for the insane have no authority to assume further custody of or control over patients so committed. Every patient thus unlawfully committed enjoys the undoubted right of withdrawal at pleasure.

It is not incumbent upon the hospital authorities to return at public expense patients so committed to the counties from which they may have been received. The obligation of those authorities to such patients will be fully discharged by informing them that they are at liberty to withdraw from the hospitals.

Justice, however, will require that both the friends of such patients, as well as the committing officer, be advised that further right of custody is disclaimed by the hospital authorities, and requesting them to remove the patient at an early date.

It would be proper to allow patients to remain within the institutions a seasonable time after such notice shall have been given, and as circumstances may require.

Judges of probate have no authority to visit hospitals

located beyond the boundaries of their counties and there act in their official capacity as committing officers in the commitment of insane persons.

Local authorities and friends of the patients so committed, neglecting or refusing to remove them from any hospital after notice so given, informations may be filed pursuant to chapter 14, of the probate code with the judge of probate of the county of which the hospital is located. This, in my opinion, is the correct solution of the problem. The expense of re-commitment would thus be minimized. Valuable evidence as to the mental condition of the patient could be rapidly provided by hospital officers and physicians, the public would thereby be less menaced by the liberation of dangerous subjects, and, what is not an unimportant consideration, the best interests of the patients themselves would thereby be subserved.

This will, of course, result in entailing considerable expense upon the few counties in which the institutions are located. Whether or not a future legislature may be disposed to relieve them, wholly or in part, of the expense incurred, the situation commands that the expense be visited upon them.

In this connection it is not to be overlooked that the Supreme Court expressly state in their decision that the provisions of the old law are now in force. This is on the theory that those provisions not having been expressly repealed by the law of 1893 still remain in force, as they cannot be regarded inconsistent with the provisions declared unconstitutional.

It is needless to suggest that no further patients should be received by the hospital authorities unless committed under the provisions of the law of 1889.

A physician might ask, with every respect for the court, the difference between a sick person suffering a mental disease and a patient suffering from some contagious disease, both objecting to incarceration in hospitals adapted for the treatment of their special maladies and for the protection of the community, to be detained during their recovery. Health departments in every state have authority (legislative) to apprehend, isolate and detain all persons afflicted with contagious diseases that they may deem necessary for the protection of the public. It requires great diligence to prevent the secretion of persons afflicted with contagious diseases. The patient and friends resist and protest against their re-

moval and detention in hospitals specially equipped for their reception, detention and treatment.

Would the learned judge demand for them due notice, appearance in court and a trial by jury, with opportunity to be heard in defence? Would he term them "the accused"? Would he consider them in the same light as criminals? Is the isolation and detention of a person afflicted with small-pox during the stage of contagion in conflict with the constitution of the United States and the State constitution, and does it entitle him to a jury trial? This suggestion is, of course, but the natural question of a physician who looks upon all diseased individuals as sick persons, some of whom are dangerous, by reason of their maladies, to the public and require special care and hospitals.

State of Rhode Island.

AN ACT FOR THE RESTRAINT AND CARE OF THE INSANE,
1893.

This act provides for three processes of commitment :

1. On complaint, a justice of a district court may commit by due process of law.
2. Parents and guardians may place patients in asylums on certificates of two physicians.
3. Voluntary commitment.

Superintendent may receive and detain without incurring civil or criminal liability. Special provisions for those under indictment and criminals who become insane. Rights of the insane protected. State supervision invested in State Board of Charities and the Chairman of State Board of Health. Provisions for discharge and transfer.

District Court officer may issue warrant for restraint of insane persons.

SECTION 1. "Whenever complaint in writing and under oath shall be made to any justice or clerk of a district court, that any person within the county is insane so as to be dangerous to the peace or safety of the people of the State, or so as to render his restraint and treatment necessary for his own welfare, such justice or clerk shall issue his warrant under his hand and seal, returnable forthwith, directed to the sheriff, deputy sheriffs, chiefs of police, town sergeants, or constables in said county,

requiring the officer charged therewith to apprehend such person and have him, with such warrant, before such or some other district court for examination relative to such complaint at such time and place within the district as shall be named in the warrant."

When insane persons are not to be examined in open court.

"And whenever such complaint shall be accompanied by a certificate signed by two practicing physicians in this state, which shall declare that said alleged insane person is an invalid, or that his condition, mental or physical, is such that he cannot, without serious prejudice to his welfare, be examined in open court, district courts are hereby empowered and directed to hold such examinations at such times and places within their districts as shall be most conducive to the health and comfort of the person to be examined, naming the place of examination in each mittimus of commitment, if such shall be made, but when an examination is made at any other place than in open court such justice shall not commit such person to an asylum without having the testimony of two practicing physicians of good standing that such person is so insane or in need of restraint."

On petition, a Justice of the Supreme Court may appoint commissioners.

SEC. 6. "On petition under oath setting forth that any person is insane and that the welfare of such person or of others requires him to be placed in a hospital for the insane or to be restrained, any Justice of the Supreme Court may forthwith appoint not less than three commissioners to inquire into the condition of the subject of such petition and to report all facts connected with or bearing upon the same, together with their opinion whether such person, if insane, should be placed in such hospital or the State asylum for the insane, either for cure or restraint."

Due notice shall be given and opportunity to be heard.

SEC. 7. "Shall give due notice to the person complained of as insane of their appointment and of the time and place of hearing, in order that he may have an opportunity by evidence, by his own statements, and by counsel to defend himself."

SEC. 8 provides that the justice may commit patient to custody of Sheriff or the Butler Asylum pending the inquiry.

The justice may allow or disallow findings of the Commissioners.

SEC. 9. "Upon the coming in of the report of said commissioners, such justice may, with or without further hearing, confirm or disallow the same, and may order the person complained of to be confined in the Butler Hospital for the insane or at the state asylum for the insane, if he can be there received, or in some other curative hospital for the insane of good repute, within or without the State, or may dismiss the petition altogether."

Parent or guardian may cause insane person to be confined on certificate of two physicians.

SEC. 11. "Insane persons may be removed to and placed in said Butler Hospital, or in any other curative hospital for the insane of good repute in this State, managed under the supervision of a board of officers, appointed under the authority of this State, by their parents, or parent, or guardians, if they have any, and if not, by their relatives and friends; but the superintendent of said hospital shall not receive any person into his custody in such case, without a certificate from two practicing physicians of good standing, known to him as such, that such person is insane, and the State shall not be liable for the support of any such person."

Insane persons may be lawfully detained.

SEC. 12. "Any person committed to the charge of any of said institutions for the insane as aforesaid, in either of the modes hereinbefore prescribed, may be lawfully received and detained in said institution by the superintendent thereof, and by his keepers and servants, until discharged in one of the modes herein provided; and neither the superintendent of such institution, his keepers or servants, nor the trustees or agents of the same, shall be liable, civilly or criminally, for receiving or detaining any person so committed or detained."

Right of detained patients to inquiry by a commission.

SEC. 15. "On petition of any person confined in such institution for the insane under the provisions of this Chapter, or of any person on his behalf, to a justice of the Supreme Court, setting forth that he has reason to believe and does believe that such person confined therein is not insane and is unjustly deprived of his liberty, the said justice shall issue a like commission, as

hereinbefore provided, for the purpose of inquiring into the condition of such person."

The right of habeas corpus.

SEC. 19. "Nothing in this chapter shall be so construed as to impair or abridge the right of any person to the writ of habeas corpus."

May be referred to a jury.

"If it shall appear to the court necessary and proper, it may in its discretion direct an issue or issues touching the sanity or insanity, or the necessity for the restraint of the person so confined, to be framed and submitted to a jury."

When indicted person is acquitted by reason of insanity.

SEC. 22. "Whenever, on the trial of any person upon an indictment, the accused shall set up in defence thereto his insanity, the jury, if they acquit such person upon such ground, shall state that they have so acquitted him; and if the going at large of the person so acquitted shall be deemed by the court dangerous to the public peace, the court shall certify its opinion to that effect to the governor, who, upon the receipt of such certificate, may make provision for the maintenance and support of the person so acquitted, and cause such person to be removed to the State asylum for the insane, or other institution for the insane either within or without this State, during the continuance of such insanity."

SECTIONS 24 and 25 provide for the transfer of insane criminals to the State asylum.

SEC. 29 constitutes the agent of the State charities and corrections and the chairman of the State Board of Health a commission to supervise and visit all institutions for the insane in the State.

SEC. 33 directs that a printed copy of a portion of the law be posted in every ward.

Voluntary Commitment.

SEC. 41. "The superintendent or keeper of any hospital except the State asylum for the insane as aforesaid, may receive and retain therein, as a boarder and patient, any person who is desirous of submitting himself to treatment, and makes written application therefor, but whose mental condition is not such as to render it legal to grant a certificate of insanity in his case. No such boarder shall be detained for more than three days after having given notice in writing of his intention or desire to leave such hospital."

Asylum Notes.

BY MATTHEW D. FIELD, M.D.,

New York.

New York City Asylums.

The City of New York acquired title to that portion of Ward's Island formerly owned by the State, and for some years occupied by the State Emigrant Hospitals. This gave the city possession of the entire island, which was turned over to the Commissioners of Public Charities and Corrections. They at once began plans for the concentration of all the city insane on this island and the farm at Central Islip. Old pavilions were lowered to the ground, the more suitable reconstructed, as was the Verplank Hospital. New pavilions were built, and a residence for the general superintendent. The pavilions at the farm were duplicated. While the old plan was adhered to, the material was changed to brick, instead of wood. The removal of the insane has already been begun. The main building at Blackwell's Island is occupied by the Ward's Island Hospital (formerly Homœopathic Hospital). The latter hospital being also now occupied by the insane. All buildings on Ward's Island are now devoted to the care of the insane. It is expected that within the year all the insane will have been removed from Blackwell's Island. So far, about fourteen hundred patients have been transformed.

Eastern Michigan Asylum.

The superintendent, Dr. C. B. Barr, has just presented a most excellent little book, entitled, "A Primer of Psychology and Mental Disease." While it is intended for the training school, it will be found very instructive and entertaining reading for the student and practitioner.

The American Medico-Psychological Association.

The next annual meeting will convene at the Continental Hotel, in Philadelphia, upon Tuesday, May 15, 1894, at 10 A.M., and continue for three days. This is the semi-Centennial meeting of the association.

Detention Wards for Cases of Suspected Insanity.

Dr. George J. Preston, of Baltimore, Md., in a paper

before the Medical and Chirurgical Faculty of Maryland at its last semi-annual meeting, strongly advocates the establishment of separate wards for this purpose.

St. Vincent's Retreat.

A recent fire destroyed valuable property belonging to the institution, but fortunately did not reach the main building occupied by patients.

The manner in which the patients were conducted from the building and controlled during the fire, showed a splendid organization and the fine control exercised over the patients by the Sisters. These Sisters believe in occupation and outdoor amusements, and one cannot pass the Retreat on a pleasant day without seeing the great majority of patients on the grounds.

Bloomington Asylum.

The superintendent's report for 1893 contains a brief resumé of twenty-two cases of general paresis admitted during the year, with reference to syphilis as a remote or immediate cause; the result is presented in the following table:

No. who have had syphilis uncomplicated.	2
“ “ “ and indulged in sexual excesses.	1
“ “ “ and were intemperate.	8
“ “ “ in which there was an hereditary tendency	1
“ have probably had syphilis	1
“ “ “ intemperate and hereditary influence	1
No. in which there was an hereditary tendency towards insanity.	3
“ “ “ “ and sexual excesses.	1
No. who were intemperate	2
No. in which was no history of syphilis, intemperance or heredity.	2

22

The length of time since the syphilis attack varied from four years; the most recent period is eighteen years, the usual period being designated as “several years ago”—implying a rather distinct rate.

It is interesting to note that the total number of admissions were 164—males 88 and females 76. That of the twenty-two cases of paresis, twenty-one were in males.

It is announced that they expect to remove to the new buildings at White Plains during the coming summer.

Periscope.

EXCERPTS WILL BE FURNISHED AS FOLLOWS:

From the Swedish, Danish, Norwegian and Finnish:

F. H. PRITCHARD, Norwalk, Ohio.

From the French and German:

L. FISKE BRYSON, M.D., N. Y.

BELLE MACDONALD, M.D., N. Y.

PH. MEIROWITZ, New York.

R. K. MACALESTER, M.D., N. Y.

From the Italian and Spanish:

WILLIAM C. KRAUSS, M.D., Buffalo, N. Y.

From the Italian and French:

E. P. HURD, M.D., Newburyport, Mass.

From the English and American:

A. FREEMAN, M.D., New York.

The Editor will not accept as ORIGINAL ARTICLES and CLINICAL CASES those that have appeared elsewhere.

Authors are requested to make none but typographical corrections on the proof sent to them. The manuscript must represent the final form in which the article is to be printed.

CLINICAL.

A Case of Cortical Blindness.—Dr. H. Magnus, of Breslau (*Deutsche Medicin Wochenschrift*, January 25, 1894), reports the following case:

P. B., 52 years old, well nourished, of regular habits, and in good circumstances. Thirteen years ago he had a sudden attack of left hemiparesis and left homonymous hemiopia, during which he did not lose consciousness, but showed a remarkable weakness of memory. This as well as the hemiparesis disappeared during the following weeks, while the blindness of the left halves of the visual fields and a disposition to headaches remained stationary. Ten years after this first attack, a second one occurred in which he lost consciousness, but from which he recovered in a few days. Three years later, he was suddenly seized with right hemiopia while walking on the street, and was unconscious for a short time. Patient thought he was totally blind after this attack, but soon noticed that he could distinguish certain objects both large and small. There was no paralysis of any muscles of the body, but his memory for recent events

was impaired. Three weeks after the onset of this last attack, Magnus was called in consultation, and was given the impression that the patient was blind. On closer examination it was discovered that a small central visual field of each eye had retained its function. Patient could distinguish several letters of the Snellen's tables with both eyes; with the right better than the left. Reading was exceedingly difficult on account of the difficulty in finding the letters; his eyes would oscillate to and fro, and it was only by chance that they would be fixed upon the letters. The same difficulty was encountered in testing his field of vision with the perimeter, and it was impossible to take it. He could not even follow the finger with his eyes after touching the point of his nose to help him to locate it. All ability to locate objects was lost. He could not find his way about his room, describe familiar roads, houses or name the number or position of the doors, etc., in his room. His optical memory was unimpaired; he recognized objects if he could see or feel them; could reckon and write correctly. The ophthalmoscopic examination revealed nothing abnormal; the physical examination was negative; general health good; has had lues. Eight weeks later, the family doctor sent the following communication: Eye sight improved and can be tested: Myopia $\frac{1}{4}$ of both eyes, acuity of vision in right nearly $\frac{1}{2}$, in left $\frac{1}{8}$. The greatest acuity seems to be excentric, for patient rotates the bulb inwards and downwards. Sense of color normal. Mental condition weakening.

This history points to a cortical lesion. The remarkable disturbances of topography and inability to locate objects have already been observed in other cases in connection with cortical blindness, and since Förster (Arch. f. Ophthal., xxxvi., Abth. I.), has proved that double homonymous hemianopsia by no means always entails complete loss of the eye-sight, but that a small central field of vision retains its function, five new cases have been published: Schweigger, (Arch. f. Augenhk., xxii., p. 336); Grönouw, (Arch. f. Psych., xxxiii., H 2); Vorster, (Allg. Zeitschr. f. Psych., xlix., p. 227); Schmidt-Rimpler, (Arch. f. Augenhk., xxvi., p. 181); and the present. R. K. M.

A Case of Hysterical Sleeping.—Emilio Leone, visiting physician of the Verona Hospital, publishes in the *Gazzetta degli Ospitali* (15 December, 1892), a most interesting and unusual case of acute hysterical manifestations. A healthy, twenty-four years' old seamstress,

devoid of any morbid, hereditary tendencies, was much shocked in the second month of her first pregnancy by the repeated attacks of epilepsy on the part of her husband. Much disturbed by his affection, she commenced to brood over it, and to deteriorate in general health. She had complained for a month of pains in her stomach, of anorexia, of indigestion, of a feeling of constriction of the throat, etc., when one day she fell to the floor in an attack of hystero-epilepsy, which lasted about a half an hour. Similar attacks occurred during the successive days. About the third month a new symptom was added to those already existing (incessant headache, vomiting), namely, imperative attacks of sleeping, of a duration varying from a few moments to several hours. On her entering the hospital as a patient, Dr. Leoni found nothing abnormal in either her mental, her physical or psychical condition other than betrayed by her constantly falling asleep (eighteen attacks of sleep during the first day of her hospital life). The patient was always warned of the imminence of her attack by a peculiar pain in her head, extending from her forehead, over the vertex, to the cervical region, and had always sufficient time to notify her room-mates of her impending condition. The quality of her sleep was natural, there being neither muscular contractions, tremor nor convulsions present. If a limb was raised it fell back inert. No amount of mechanical excitation sufficed to awaken the patient, but when she awoke of her own accord she was always in a perfectly normal state and never complained of any unusual feeling. Her only two convulsive attacks preceded her sleeping, but did not follow it. There was at no time elevation of the temperature, even during the hystero-epileptic fits, and while in the hospital the patient's weight increased four pounds. The tendency to sleep constantly diminished, partly owing to the daily douches, and partly, doubtless, to the constant suggestion made to her, of the unimportance and waning of the symptoms, as well as its more direct dependence upon her pregnancy. The only medicine administered to her was four centigrammes of sodium chloride. E. N. B.

The Two Principal Types of Infantile Paralysis.—(*L'Union Médicale*, March 4, 1893). Professor Grasset, of Montpellier, in one of his recent lectures at the hospital, St. Eloi, called attention to the comparative study of atrophic spinal paralysis and of spastic cerebral paralysis. The first of these paralyses has the general

disturbance, the febrile beginning, common to all the acute diseases of childhood. During the first days there is fever, occasional convulsions, and at that moment, the diagnosis is impossible. Doubt, however, is no longer possible, the moment the paralysis appears. The paralysis, either generalized or wide spread, affecting several muscles, or of the paraplegic form, is always, in the beginning, more extensive than it will be later. To the first period succeeds a regressive one, in which the paralysis is limited to a few muscles or the several muscular groups. Simultaneously with the paralysis, a rapidly increasing atrophy occurs, followed by a faulty or retarded development of the corresponding parts, and giving rise to the well known deformations and infirmities. In spastic paralysis, on the other hand, the motor trouble takes on the hemiplegic form independently of its own specific contractile or paralytic nature, and this constitutes its fundamental difference from spinal paralysis in which this form almost never occurs. The entire spastic syndrome, the persistent, or intermittent and frequent contractures, the epileptoid trepidation, the trembling, the exaggerated patellar reflex, the absent or tardy atrophy, combine to form a very important and special picture, not discernible in infantile paralysis.

These various symptoms are necessarily not always present at the same time, inasmuch as the cerebral lesion is not constantly the same. Sometimes there has existed a cerebral hemorrhage, which may even date to the intra-uterine life, to which has succeeded a cerebral or a descending bulbo-medullary sclerosis. On other occasions, the sclerosis may be primary. To the consecutive cerebral atrophy succeeds a destruction of the nervous tissue, creating normal brain cavities. The continued evolution of the lesions in cerebral paralysis calls for the local application of revulsives, such as the thermo-cautery, etc. The various bromides can be tried as well as sodium borate. Craniectomy in diffuse, or trephination in localized lesions, have not been followed by encouraging results.

E. N. B.

Erythromelalgia.—The *Deutsche Medicinische Wochenschrift*, 1893, No. 50, contains an interesting paper by Prof. Eulenberg on Erythromelalgia, based upon three cases, whose histories are briefly as follows:

CASE I is that of a woman coming of a neuropathic family, who soon after a confinement in her twenty-ninth year, experienced at night a severe attack of pain in

both hands, which became red and hot to the touch; the skin appeared tense and shining; some of the joints were swollen, the veins enlarged, and the secretion of sweat diminished. Movement of the fingers increased the pain. The right side was more affected than the left and showed diminished muscular force. Beside the pain there were no other sensory disturbances. The muscles of the shoulder and upper arm exhibited partial nutritive changes without fibrillary contraction or reaction of degeneration, but similar to the juvenile form of Erb's progressive muscular dystrophy.

CASE II.—Female, 45, unmarried, climacterium; Neurotic anamnesis. She has attacks of severe pain in the hands and feet, particularly at night. The extremities become swollen and burning red, as though scorched; then, again, cold and bluish with discrete red spots, especially upon the palms. The joints are swollen and the nails red and painful when cut. These symptoms were combined with those of a severe, chronic progressive cerebral affection (tumor?), with congestive and apoplectic attacks, and with a tendency to hemorrhages from the nose and the retinal vessels.

CASE III involves a tailor, 54 years of age, whose mother had the same affection upon the feet for many years. Prior to the development of erythromelalgia, the patient suffered from an obstinate malaria, intense headaches and attacks of vertigo. Formication, pain and redness of the left hand appeared first at the age of twenty-four. These symptoms markedly increased in his thirty-second year, apparently as a result of exposure to cold. At thirty-seven, the condition gradually developed in the right foot, and at fifty-one it began to show itself in the left foot.

The affection is worse in the winter than in the summer. The redness and swelling increase and the pain extends to the knee in the lower extremity and to the elbow in the upper. Work increases the pain in the hand, whilst the fingers get stiff. There is a tendency to hyperidrosis and to almost uncontrollable local hemorrhages. The left elbow region is similarly affected. The skin is dry, brittle, speckled, and the veins dilated. Excluding the pain, there are no sensory disturbances.

As regards the etiology of erythromelalgia, Eulenberg does not favor cold as an important factor. He lays stress upon heredity as a disposing element. Exhausting manual labor, as in "acroparesthesia" of Fr.

Schultze, or in the "work paresis" of Remak, which are to a certain extent allied to erythromelalgia, cannot be accused etiologically, as the latter disease manifests itself in the lower extremities and in the face.

Senator believes that cases of erythromelalgia were placed under the head of what was termed in the old pathology, "chronic or diffuse habitual erythema." The descriptions of "acrodynia" and of "erythema" strongly remind one of erythromelalgia, excepting the epidemic character of the former affections. Gerhardt has called attention to the symptomatic relation existing between erythromelalgia and "vaso-motor neurosis" (Nothnagel), "arteriospasm" (Martin), and "acroparesthesia" (Fr. Schultze). The differential diagnosis also involves the consideration of such severe nutritive disturbances in the extremities as acromegalia, myxoedema, sclerema, and Raynaud's disease. But all these may be excluded in the differentiation of erythromelalgia from other affections by strictly bearing in mind the sudden onset of pain and redness accompanied by heat and swelling in the extremities, which form the characteristics of the affection under consideration.

As regards the pathology of erythromelalgia, Eulenberg is inclined to consider the affection a neurosis, involving the sensory and vaso-motor mechanisms, and at times also, the secretory and the trophic. He believes it to be central from the fact that it is usually symmetrical and often associated with severe pathological cerebro-spinal phenomena, and that it forms one of a group of allied pathological conditions, which are the expressions of lesions lying mostly in the posterior and lateral grey horns of the cord, and at times in the anterior cornua and posterior columns and nerve roots.

In the group belong syringomyelia, Morvan's disease, the bulbo-medullary symptom-complex of Grasset and Ranzier, Raynaud's disease, and lastly, erythromelalgia of Weir Mitchell. P. M.

Neuritis Leprosa.—Virchow's *Archiv.* contains an exhaustive clinical and microscopical study of a case of leprosy, by Drs. Ed. Arnig and M. Nonne. The principal facts elicited were mostly in accord with those of previous observers. It was found that the first changes, such as alteration of sensation, pigmentation, and so forth, were due to the presence of the lepra bacillus in the terminal nerve filaments of the skin. The atrophic and other destructive changes were the result of second-

ary degeneration brought about by invasion and compression of the surrounding tissues, the pathological progress finally becoming a general one.

The first symptom exhibited by the patient was that of neuritis over distinct areas, then changes in the appearance of the skin, with hyperæsthesia followed by analgesia. The qualitative and quantitative electrical tests of the upper extremities gave an interesting result. The disease of the nerves showed a predilection for the wrist and elbow of both sides, the ulnar nerve being much swollen. There were no fibrillary tremors over this region. The reflex of the triceps and forearm was weak. Examination of the lower extremities gave negative results. There were no spinal or cerebral symptoms. The ulnar and median nerve on the left side gave weak contractions. Reaction to galvanism was lost. Movements of the fingers, especially those controlled by the thenar and hypothenar group, were slow and difficult. Resection was made of a portion of the ulnar nerve and of the first interosseous muscle. Macroscopically, it appeared normal, but microscopically the condition was worthy of note. Sections showed marked degeneration in various localities; in one place the fibres might be intact, in another destroyed. The inflammation seemed to extend along the nerve trunk, its ramifications holding out longer against the pernicious germ. The lepra bacilli were found disseminated among the nerve fibres. The degeneration of the muscle was limited at first to various bundles of nerves, usually those of the periphery. The article was accompanied by several drawings which showed very clearly how the bacilli invaded the nerve bundles, one cross section showing the various stages in the degenerative processes throughout the nerve structure and muscle. The neurilemma and the perimysium were the last structures to resist the onslaught of the leprous process.

B. M.

THERAPEUTICAL.

Modern Treatment of Idiocy.—In the *Progrès Medical*, June 24, 1893, there is a most interesting illustrated paper by Bourneville on the treatment of idiocy and imbecility.

Idiocy is classified as symptomatic of hydrocephalus, arrested development of convolutions, congenital or pathological malformations of the brain, meningitis or

meningo-encephalitis, hyperthrophic sclerosis, atrophic sclerosis, myxoæda, or cerebral tumors. Bourneville's paper contains a comparative study of the skulls and photographed brains of twenty-two idiotic children, of ages averaging from two to seventeen, their condition of mental inferiority being dependent upon different causes, and their death due to a variety of diseases. These children were all typical idiots and belonged to the same category as the twenty-five patients operated upon by Lannelogue. Treatment was that originated by the late Dr. Seguin and brought to greater technical perfection by Bourneville, and combined medical, hygienic, and pedagogic measures. The children learn through activities, by doing things and making things. They are first taught to stand erect, to walk properly, to wash their faces and hands, to dress themselves, to lace their shoes and perform other complicated acts. These object lessons are given upon the 'manikin or upon one of the little patients. The joints are exercised, the muscles are rubbed, baths are administered, and all the arts of hydro-therapy are employed. For the development of speech and correct pronunciation, methods in vogue in deaf and dumb asylums are utilized. Every device is employed to render numbers and calculations real and intelligible. Exercise in the training of vision are further carried on out of doors in gardens or plots laid out with this object in view. There are gardens of surfaces, of geometric figures, flower gardens, vegetable gardens, orchards, fields of grain, vineyards, etc.

Music occupies an important place in this scheme of mental and moral development. There are songs and movements, games and lessons in vocal and instrumental music for the advanced pupils. Physical culture is carried on by means of systematized mechanical movements, free gymnastics, fencing and dancing. Technical training for a trade completes the course of instruction. There are seven workshops. The pupils learn carpentry and locksmith work, printing, tailoring, the making of shoes, baskets, brushes, twine, etc. The results of this medico-pedagogic system of education are most surprising and encouraging.

Bourneville calls attention to the fact that many backward and imbecile children are moral imbeciles. They are unstable, perverse, impulsive, disorderly and wayward. They reach a certain stage of development, a moderate intellectual capacity. The moral qualities

are in abeyance; and moral imbeciles have as much mind as is consistent or possible with a total absence of character. Bourneville's wide experience and unusual field of observation gives unquestioned weight to conclusions that differ in certain particulars from the theories of other observers. The following embodies six important points upon which the author lays great stress: (I) The surgical treatment of idiocy rests upon a hypothesis not substantiated by pathological anatomy. (II) In the different forms of idiocy premature ossification of the cranial sutures does not exist. Partial synostosis is quite exceptional. (III) Lesions causing idiocy are generally profound, extensive and varied, and most unlikely to be influenced by craniectomy. (IV) Our present means of investigation are not such that a diagnosis of premature ossification and thickness of the skull can be made. (V) Reports of most surgeons show that results of operations are negative, slight or doubtful. Serious accidents, as paralysis, convulsions or death may follow surgical interference. (VI) Medico-pedagogic treatment, founded by Seguin and improved by the introduction of new processes, permits a decided amelioration always, and often enables idiotic children to occupy some social station.

L. F. B.

The Effect of "Suspension Treatment" on the Visual Disturbances in Spinal Cord Affections.

—Bechterew (Neurolog. Centralblatt., No. 7, 1893), has observed a remarkable improvement in vision as a result of suspension. He reports three cases. In one case of tabes, the sight was markedly diminished in both eyes, but the patient could see much better and was able to read without glasses immediately after each suspension. There was also decided improvement in another tabetic in whom there was distinct optic atrophy.

In the third case there was tuberculous disease affecting the brain and spinal cord. The vision in the right eye was defective and both optic nerves were hyperæmic.

Both the visual field and the acuity of vision were improved. In explanation of the effect of suspension, he is of the opinion that it is best explained by the production of increased blood pressure and active cerebral hyperæmia.

W. M. L.

Society Reports.

PHILADELPHIA NEUROLOGICAL SOCIETY.

Stated meeting, February 26th, 1894.

President, Dr. WHARTON SINKLER, in the chair.

Dr. WILLIAM TAYLOR read a paper on

TREPHINING FOR MIDDLE MENINGEAL HEMORRHAGE WITHOUT FRACTURE—AND REPORTED THREE CASES.

ABSTRACT.

He described briefly the anatomy of the parts involved, the symptoms usually accompanying rupture of the artery and gave a short account of the surgical technique.

CASE I.—A man, aged 48 years, who had fallen down stairs and injured his head, but with no evidence of fracture of the skull. He was stunned by the fall, but soon regained consciousness and walked around the room for some time. He again became unconscious and in this state was brought to St. Agnes Hospital.

He had constant convulsive movements of the right side and paresis of the left side of the body, with paralysis of the left side of the face.

A button of bone was first removed from the right side of the skull and the anterior branch of the middle meningeal artery found to be uninjured. A similar button of bone was then removed from the left side of the skull and the ruptured anterior branch of the artery secured by ligation and packing with gauze after a large blood clot had been removed.

The patient died in two days. There was no fracture of the skull, but an apoplectic clot in the right hemisphere of the brain was discovered. This was the cause of the left-sided motor disturbances. It was now known for the first time that the patient had had an apoplectic seizure some six weeks before the injury just described.

CASE II.—A man, aged 50 years, admitted to St. Agnes Hospital under the care of Dr. W. W. Keen. He had fallen from a hay loft, striking upon the top of his head. When seen by Dr. Keen, about one hour after the accident, he was unconscious, the left pupil dilated, but there was no fracture of the skull. The skull was trephined and the anterior branch of the middle meningeal artery was seen to be ruptured at two points, and the posterior branch was likewise ruptured at two points.

The patient died very soon from the loss of blood and severity of the injury.

CASE III.—Was one of intracranial (cerebral) hemorrhage, involving fibres from the cuneus and producing hemianopsia.

The patient was a slender woman of 65, who had fallen down stairs, striking the back of her head.

She was unconscious at first, but the next day, although not able to manifest desires, she found a lighted candle with her eye when the candle was carried to the left of the middle line, but when the light was carried to the right of the middle line she would not follow it. There was no paralysis at first, but gradually in about thirty-six hours after the accident, she became comatose and did not move her extremities.

No operation was attempted, as she was dying when first seen by Drs. Keen and Taylor.

Post-mortem examination showed no fracture, but a cortical clot extending deeply so as to moisten the fibres for the cuneus. This clot was directly beneath the posterior branch of the middle meningeal artery, and was the point selected for operative interference had that been possible.

DISCUSSION.

Dr. W. W. KEEN.—There are a few points to which I should like to call attention in connection with these cases. First of all, it seems to me that the gravity of the injury, the ease of diagnosis in the large majority of cases and the success of treatment are not appreciated either in our text books or by the profession at large. I am very glad that Dr. Taylor has reported three fatal cases, because we want to know something with reference to results with and without operation. If none of these cases had been operated upon they would all without question have died. Operation gave the only possible chance of recovery. The difference in result be-

tween the non-operated cases and the operated cases has been studied by Wiesmann, who places the mortality of the first class at 89.1 per cent., and of the second class at 32.7 per cent.

The mechanism of the tearing of these vessels was well illustrated to me last Wednesday in a case where I operated for the removal of the Gasserian ganglion. After turning down the flap of bone and scalp, as I was about lifting the middle cerebral lobe with my finger, suddenly a violent hemorrhage took place from the posterior branch of the middle meningeal and I perceived that it was due to the fact that a large branch was given off to penetrate the bone and when my finger lifted the dura this was torn. I have no doubt that in the majority of cases where this lesion follows a blow it is due to this momentary separation of the dura from the bone tearing the branches in this manner. There is, I believe, only one instance on record of spontaneous rupture of the middle meningeal. This was a French case reported by Michaux (*Rev. de Chir.*, 1891, 376). The man was an absinthe drinker. He recovered after trephining.

In making the diagnosis, the first point of all and the one of greatest value, as Dr. Taylor has indicated, is the period of consciousness between two periods of unconsciousness—the primary stunning and the secondary coma. This period of consciousness, if it exists, which is not always the case, should always make us suspect rupture of the middle meningeal. The man reported by Dr. Taylor, who had fallen on his head in a stable, had four ruptures, two of the anterior and two of the posterior branch. There was absolutely no history of consciousness, and I have every reason to believe that there was no period of consciousness, because, when I saw him about two hours after the accident, the clot was so large that when I opened the skull it took nearly the entire length of my finger to reach the dura. The clot was probably quite as large as my fist.

As to the localizing symptoms, they fall into three categories. In the first place there are the motor symptoms, because, fortunately, this artery lies in the neighborhood of the motor zone. We have motor aphasia from pressure at the bottom, then involvement of the face, then of the arm, and rarely, unless the hemorrhage be enormous, involvement of the leg centres. I think we cannot insist too strongly that the site of all operations should be determined, not by the seat of the injury or

supposed seat of the injury, but by the localizing symptoms. A number of instances has been recorded by Jacobson and others of erroneous treatment owing to the fact that localizing symptoms were not depended upon.

We have, secondly, the dilatation of the pupil as another localizing sign. In one of the cases reported the dilatation of the pupil was the only localizing symptom that I had. The pupil on the left side was a little larger and a little more sluggish than that on the right and this determined me to operate on the left side. If this had failed, the only proper course would have been to have operated on the opposite side. In the last case narrated the very careful observation of Dr. Cross was the only localizing symptom. If we had made a diagnosis from the movements of the patient's hand to the right side of the head, we should have been wrong. The observation of Dr. Cross seemed to indicate that the left half of each retina was blind, and, therefore, the left optic tract and the left cuneus were involved.

With regard to the diagnosis between rupture of the middle meningeal and the middle cerebral artery, I do not think that a satisfactory and accurate diagnosis can be made, nor do I think that this is essential. Whether the clot be inside or outside of the dura is, surgically speaking, a matter of small moment.

The control of the hemorrhage should, if possible, always be by ligature. Sometimes, where there is rupture of the main trunk low down near to or at the foramen spinosum, this may not be possible. In these cases the hemorrhage can sometimes be prevented by packing. I had this illustrated last Wednesday when removing the Gasserian ganglion. In attempting to discover the third division of the fifth nerve, using Allis's blunt dissector, the middle meningeal was ruptured in the foramen spinosum. So long as the dissector remained in the foramen, hemorrhage was arrested. While controlling the bleeding in this way I removed the third branch and destroyed the ganglion. I then substituted my left forefinger for the dissector. Then I smeared over a piece of iodoform gauze with Horsley's putty and inserted this over the opening, and then packed tightly with gauze. This controlled the bleeding, and three days later I removed the gauze with great care and the hemorrhage remained arrested. No bleeding has occurred since.

Dr. ERNEST LA PLACE.—Dr. Keen has covered pretty

much all the points, and I can add little except the report of a case. In this case there was that interval of consciousness lasting half an hour to which reference has been made. This man was struck on the side of the head with a whip handle, but there was no fracture. Half an hour later the arm became paralyzed and he gradually lost consciousness. He was then brought to the hospital and I immediately trephined and removed the clot. The bleeding was controlled by packing the iodoform gauze as the artery could not be readily found.

I note in the paper that the author uses cat-gut to sew up the meninges. I have always been afraid of cat gut, owing to the ease with which infection takes place. I have always used the finest Chinese silk and have had no reason to regret it.

In this connection, I should like to mention a case reported by Smart in Sajous' Annual, of hemorrhage at the base of the brain as the result of a fall without fracture. There was left hemianopsia, slight motor aphasia, and general dullness without complete unconsciousness. The diagnosis was not clearly made out, but in as much as the symptoms were progressive, it was thought wise to trephine, and Dr. Chiene, of Edinburgh, trephined on a level with the zygomatic arch and removed from the under surface of the brain a large amount of blood. The exact source of the bleeding was not made out. In his remarks he advises the use of the trephine somewhere in the neighborhood of the suspected hemorrhage, even if the absolute diagnosis cannot be made out. Some two years ago, I insisted on that point and related a case of hemorrhage at the base of the brain the result of a wound produced by a fencing foil. This injured the cavernous sinus leading to the formation of a clot. I trephined in the same locality as Dr. Chiene and removed a large clot. The following day the dressings contained at least four ounces of serum. I believe that there is still a large field to be studied in the way of thorough drainage of the cranial cavity.

Dr. FRANCIS X. DERCUM.—In regard to supra-dural hemorrhage, the symptoms, it seems to me, are usually clear, but both in supra-dural hemorrhage and in intrameningeal hemorrhage doubt now and then arises when the hemorrhage is complicated with signs of concussion. To illustrate this, I might recite a case which occurred in the Philadelphia Hospital some years ago. An epileptic fell in a fit striking the back of the head on the

hard pavement. One of the surgeons happened to be in the institution and I summoned him in consultation. The man was unconscious and had stertorous breathing, and it seemed that one side was a little more relaxed than the other, and on that side, also, the pupil was dilated. I suggested that the case be trephined. I did not expect to find supra-dural hemorrhage as the interval of consciousness was lacking, but thought that hemorrhage into the arachnoid space would be found. Although the symptoms seemed to point distinctly to one side, trephining on that side failed to reveal the clot. The patient's condition was such that the surgeon declined to go further. The autopsy showed an extensive subdural clot on the other side. Trephining could hardly have afforded relief as the effusion was much diffused over the lateral aspect and the base of the brain. Where the bleeding is so widely diffused, the mechanical difficulties might be overcome by making openings in the skull some distance apart and irrigating from one to the other.

In a case in which we have symptoms of cerebral concussion complicating those of fracture or hemorrhage, trephining should be done with great rapidity, and failing to find the source of trouble on one side we should then trephine on the other. The added number of openings in the skull will do no harm.

In some of these cases I do not see the way clear to make a differential diagnosis, and to say how far the symptoms are due to concussion and how far to cerebral hemorrhage, and I should like to hear an expression of opinion from the surgeons on this point.

Dr. WHARTON SINKLER.—I saw Mrs. A. with Dr. Cross, on the evening of December 30th. I found her comatose, breathing stertorous, and entirely unconscious of all her surroundings. The pupils of both eyes were widely dilated, but the coma was so deep that she did not observe light, even when a candle was held close to her eyes. There were involuntary movements of both the left and the right arms. These movements were not spasmodic, but the arm was lifted and moved about as if under the influence of the will—the right arm was used most freely. There was no evidence of any sensation to touch, or pin pricks. The knee-jerks were absent; and irritation of the soles of the feet caused no reflex contractions. A careful examination of the scalp showed no external evidences of injury, and no depression in the skull could be detected.

Taking the history of the case in consideration, and Dr. Cross's observation in regard to the presence of hemianopsia, it seemed that there had been a hemorrhage sub-dural or extra-dural in character, and in the region of the left cuneus. The absence of paralysis made it improbable that there had been an extensive hemorrhage in the substance of the brain as this would, no doubt, have reached the motor region. As the patient's pulse was good, the heart sound and the general condition fair, it seemed a case in which a trephining over the seat of the supposed lesion would be a justifiable operation. At all events, the prognosis was almost surely fatal if no operative interference was made, and, under these circumstances, the question of the operation with a full explanation of the condition of affairs was laid before the family. They at once agreed to take the chances of an operation, and I, therefore, asked Dr. Keen to visit the patient, with a view of trephining. The patient died shortly after Dr. Keen reached the house. The death was quite sudden, from failure of the heart. A few minutes before, the pulse was good and the patient's condition apparently as favorable as it had been three or four hours previous. The autopsy, of which Dr. W. J. Taylor has given a description, shows that had an operation been done, it would have been easy to remove the clot which was found at the autopsy.

The question, as to whether the hemorrhage had preceded the fall, or was the result of a blow upon the head, is one of great interest. The patient had a history of one or more attacks of vertigo previously, and it seems not improbable that she had an attack of vertigo while going up stairs and fell in consequence.

The diagnosis between sub-dural or extra-dural hemorrhage, and hemorrhage into the substance of the brain, is one which it is not always easy to make. Hemorrhage into the substance of the brain, however, usually occurs from the middle meningeal artery, or one of its branches, and the hemorrhage then takes place into the internal capsule, or in the motor region of the cortex. Under these circumstances there would, of necessity be paralysis of motion, more or less extensive, as well as compression symptoms. The history of the case is of great assistance in deciding the question as to whether the lesion is meningeal or cerebral. The operations which have been done for hemorrhage just beneath or over the dura have been few in number, but the results have been

sufficiently satisfactory to make us feel encouraged to operate in a certain class of cases. The cases most favorable are those in which an injury has caused the lesion and in patients whose vessels are healthy.

When we see a case like that which has just been referred to, in which localizing symptoms are so well marked, I think it is our duty to recommend a surgical operation, provided that the patient's condition is sufficiently good to justify it. The case under consideration was hardly a good subject for operation; her age was advanced, the vessels were atheromatus, and it was a question whether the hemorrhage was the result of the fall which she had sustained or whether a diseased vessel had given way; so that the operation would have been attended with difficulties, and it is not likely that even had the operation been successfully done, that the patient would have survived many months.

Dr. W. W. KEEN.—With reference to the diagnosis between concussion and hemorrhage, there are several symptoms which I think that we can utilize. The period of consciousness, if it exists, is of great value. In concussion there would not be that deep unconsciousness which we see in the secondary coma from pressure. In concussion the patient can usually be aroused by shaking or loud questioning; in the coma of compression this cannot be done. In concussion the pupils are usually equal and responsive to light. In compression from clot the pupils are usually unequal, and the one on the side of the pressure will be more or less dilated, and also be very sluggish or not at all responsive to light. The rise of temperature which follows middle meningeal hemorrhage is not usual in connection with concussion. As time goes on, if the symptoms are to concussion, the condition of the patient will improve, whereas if they are due to hemorrhage, they will go from bad to worse. Moreover, in concussion alone, there would not be distinct localizing symptoms.

I should like to emphasize the statement already made that if we do not find the clot on one side, we should trephine on the other side. Especially, as there are on record a few instances in which the localizing signs have been misleading and the hemorrhage has been on the side opposite to that indicated.

Dr. Taylor has confined his remarks to cases of hemorrhage without fracture. These, of course, are much fewer than those with fracture. I do not think

that we can too strongly impress the profession at large with the fact that with moderate violence, wholly insufficient to fracture the skull, the middle meningeal or middle cerebral may be ruptured, and, as a consequence, death will almost invariably result unless operative interference is undertaken.

Dr. F. X. DERCUM.—I alluded not so much to the differential diagnosis between concussion and meningeal hemorrhage, but to the difficulty in recognizing cases in which the concussion is a complicating factor.

Dr. CHARLES K. MILLS.—Several points in connection with localization are of interest. A case was mentioned in the paper in which there was spasm on one side and loss of power on the other; and the spasm was on the side opposite the lesion. Dr. Taylor also said that the hemorrhage was dural and made the statement that the symptoms would probably be the same as when the hemorrhage was subdural or cortical. This may or may not be the case. This is occasionally a source of error in studying localization symptoms. I called attention to the fact in 1888, which has been referred to before, that the spasmodic symptoms of dural hemorrhage are, or may be, on the same side as the lesion, and that this is probably attributable to the fact that the spasm is the result of conveyed or reflected irritation through branches of the fifth nerve to the pons. In these cases the spasm is likely to have a large tonic element. You may have this in sub-dural, but more especially in supra-dural clot. In some of these instances there may be an association of both dural and cortical spasms.

Another point which is passed over too frequently is the association with the fracture or large hemorrhage, of numerous small hemorrhages in various portions of the brain. The same thing occurs in a case of large hemorrhage into the brain without external violence. Duret has indicated the mechanism of the occurrence of these hemorrhages. I might say that these minute hemorrhages are particularly liable to occur when fracture has not taken place. When we come to the consideration of confusing symptoms it is important to bear in mind the possibility that the symptoms referable to the other hemisphere may be due to the more or less minute extravasations which accompany the large and supreme extravasation.

A symptom which has always interested me in these cases is the dilated pupil. I have never been able to

reach an entirely satisfactory explanation of the occurrence of this symptom. As I have observed these cases, it is not accompanied by other indications of third nerve paralysis. What would seem to be a simple explanation is, that the blood goes to the base and by direct pressure on the third nerve or some of its root fibres causes the symptom, but this does not seem to be likely. Various other explanations suggest themselves, but none are sufficient.

When one talks about differentiating concussion from hemorrhage it is necessary to know what is meant by concussion. As I understood Dr. Keen's remarks, he rather indicated what we know in popular language as a stun from a blow, which is often seen and from which the patient recovers. We have all varieties of stunning beside those in which the patient rapidly recovers without any after effects. In some varieties of concussion you can have more serious and fatal symptoms than occur in ordinary hemorrhages.

Dr. HOWARD F. HANSELL.—Since dilatation of the pupil has been referred to as a diagnostic symptom, I have been endeavoring to find in my own mind a satisfactory explanation of it. While I believe that it can help to indicate the side of the brain affected, I think that its localizing value ceases there. We know that dilatation may be due to paralysis of the pupillary branch of the third nerve, in which case the lesion will be nuclear and situated in the floor of the fourth ventricle, or it can be due to over-action of the sympathetic fibres without paralysis of the pupillary branch. But neither of these explanations is satisfactory, and I have concluded that the dilatation must be because the optic nerves on that side are paralyzed by pressure. The light reflex is a circle, the first part of which is the impression on the retina, which is carried back through the optic nerve. If the retina is not perceptive we will have dilatation of the pupil. In nearly all cases of blindness from paralysis of the optic nerve, we find a dilated pupil, and this without any affection of the sympathetic or the third nerve.

The diagnosis of hemianopsia, present in one of the cases, must have been attended with considerable difficulty. There are central visual fibres in the optic nerve which run out from the fovea centralis of each retina, and these are seldom affected in hemianopsia. Since the image of an object looked at falls on the fovea centralis and its immediate neighborhood, the visual axes would

naturally be directed towards a light, even in cases of hemianopsia. The symptoms of dilated pupil and hemianopsia are, in my opinion, simply indications of the side of the brain on which the lesion is and do not localize definitely.

Dr. W. W. KEEN.—I would state that in the third case there was not dilatation of the pupil on one side, but both pupils were dilated. While I admit that Dr. Cross's observation as to hemianopsia was a crude one, yet it was necessarily so, and it was the only localizing point that we had. The autopsy showed that had we operated on the indication that it furnished, we should have been correct.

Dr. ERNEST LA PLACE.—With regard to the diagnosis between concussion and other conditions, I take it that concussion is really, so far as diagnosis is concerned, purely functional. It is a shaking up of the brain, it is a mild striking of the brain against the skull. This is the mildest type. Anything beyond that to the extent of the rupture of the minutest capillary ceases to be concussion, but enters the domain of contusion. The extent of the contusion may vary to any degree depending upon the number of capillaries that have ruptured. This causes hemorrhage and leads to compression. Where there is simple concussion the man is dazed for a time but he comes out of that and there is no permanent change. Where there is contusion there is hemorrhage, the effects of which will remain until absorption has taken place, and even after absorption, and may result in certain forms of insanity, of permanent headache or of epilepsy.

Dr. CHARLES K. MILLS.—In the sense in which Dr. La Place defines concussion, I am inclined to doubt if we ever have unconsciousness produced. Of course, theoretically, it is possible for the brain to be concussed without hemorrhage taking place. The blood vessels of the nervous system, and the nervous structures themselves, are so delicate that I do not accept molecular concussion as taught by Erichsen as explaining many phenomena. In all the severe cases of concussion it is probable that hemorrhage from the capillaries at least takes place. I do not believe that this is the result of contusion in the sense of impact against the inside of the skull. The physical principles underlying the occurrence of these hemorrhages have been explained by Duret and others, and the hemorrhages may occur in parts of the brain

not in contact with the skull. Concussion, when severe enough to produce unconsciousness is, I presume, always associated with some vascular lesion. With regard to the explanation of the dilated pupil, I do not think it necessary to bring hemianopsia into the discussion. The explanation is probably that which has been indicated, that the fibres which complete the reflex pupillary arc are interfered with. It has been shown by microscopic examination that one little set of fibres of the optic tract dip into the gray substance of the base of the brain near the tuber cinereum, and pressure on the optic tract of one side including these fibres might explain the dilatation of the pupil.

Dr. F. X. DERCUM.—I cannot accept the explanation of the dilatation of the pupil which has been given. The fibres of the optic tract which form part of the arc for the reflexes of the iris go to one half of each eye, and thus the retinae of both eyes are equally deadened and there is slight dilatation of both pupils, never inequality.

Another explanation is this: The nuclei of the oculomotor nerves, which give origin to the fibres supplying the iris, are exceedingly delicate. They are much less robust than the cells which supply the gross muscles, and we know further that these fibres react to very delicate and comparatively slight impressions; thus, in syphilitic cases we often see marked dilatation when there is only slight involvement of the extrinsic muscles. In hemorrhage, we have a sudden increase of the intracranial pressure and these delicate structures react readily to slight changes in pressure, and that is why we have the dilated pupils.

Dr. W. W. KEEN.—The word "concussion" when used symptomatically is a very convenient one, but when used pathologically it is, I think, inaccurate. I do not believe in concussion as expressive of simply a functional lesion. I cannot conceive of there being symptoms of concussion of any severity without some physical change in the brain itself. This change may be a rupture of the capillaries, but we must remember also that the nerve fibres are quite as delicate and as easily ruptured as the capillaries. I, therefore, believe that the word concussion, in a pathological sense, indicates a lesion, it may be of the blood vessels or of nerve fibres or possibly of the nerve cells, or of all these structures.

Dr. W. L. ROBINSON, Danville, Va. (By invitation).—I am not a neurologist, and in the line of thought that

you have been discussing, I do not think that I could add anything. If, however, two cases that have occurred to me in the last eighteen months would be of interest to you, I shall gladly relate them. Eighteen months ago, I was called to see a little child, three years of age, who had fallen some twenty feet, striking the head on the edge of a plank. There was a long swelling half as thick as my wrist on the right side of the head. The strange thing was that there was paralysis of that side. There was great stertor and difficulty of breathing. The skin was not broken. I had no instruments with me, so I sterilized my pen-knife and some gauze and opened the scalp and turned out the clot. Instead of finding a depression of the bone there was a marked separation; it seemed to be an eighth of an inch wide by five inches in length. After removing the clots, I laid a piece of gauze over the wound and gave an injection of chloral and kept the child thoroughly narcotized. The moment that it came from under the chloral, spasm would commence on that side. The child was seen by a number of physicians and they all said that it would die. I kept it under chloral three days and nights. I then let up on the chloral and it recognized its mother and gradually recovered without spasm. Twelve months later, I again saw it, a healthy, strong child without any paralysis.

The second case was that of a young man who, on the 12th of July, was diving in shallow water and struck his head and did not come up. His friends pulled him up. His family physician was with him at the time and thought that there was nothing wrong. Four men brought him to the hotel. He had no power of motion on either side below the neck, but was perfectly conscious. I made his comrades hold his heels, while I made traction on the head and got sensation in the fingers. I then applied extension and counter-extension and kept him so. I subsequently put on a plaster cast. In November, his physician removed the cast and he was a well man. You gentlemen can explain the case, I cannot, except by a dislocation of the vertebra.

Dr. CHARLES S. POTTS read a paper on

A CASE OF ACUTE DELIRIUM, WITH AUTOPSY
AND BACTERIOLOGICAL EXAMINATION OF
THE CEREBRO-SPINAL FLUID.

ABSTRACT.

The patient, a member of the medical profession,

et. 33 years, of good habits, but sensitive nature, had been having considerable family trouble and worry. In June last was afflicted with urticaria, lasting until August, when a carbuncle made its appearance upon his upper lip. This was opened and curetted ten days after its appearance. For several days previous to its being opened the patient had been taking rather large quantities of whisky and morphia. This was stopped when he came under medical supervision, and he did well for nine days, when at 10:30 P. M. he became violently delirious and endeavored to jump out of the window. The next day he was, with the exception of brief intervals, rational, but in the afternoon again became violently delirious, and remained so until death. His temperature was normal until the evening of August 24th, three days after the commencement of the attack, when it was 101° Fahr. From that point it gradually arose until three hours before death, when it was 108.2° Fahr. At that time delirium gave place to coma and the patient died at 11 P. M. At no time was headache complained of. The autopsy was made seventeen hours after death by Dr. J. W. McConnell in the presence of Drs. C. K. Mills, Berlet, Klemm and myself. The brain and meninges appeared to be normal, as did all the other organs of the body.

Cultures made from the cerebro-spinal fluid by Dr. D. Braden Kyle demonstrating the presence of the so-called micrococcus lanciolatus or pneumonococcus of Fraenkel and Weichselbaum, and the staphylococcus pyogenes aureus and albus.

Microscopic examination of the gray matter of the cortex showed the appearances described by Osler, *i. e.*, perivascular exudation, and leucocytes in the lymph sheaths and periganglionic spaces.

As the germs isolated in this case are those usually found in meningitis we would advance as a possible explanation for the lack of microscopic findings in spite of the severe symptoms present in this disease, that the taxæmia was so violent as to cause the death of the patient before appearances visible to the naked eye had time to develop.

DISCUSSION.

Dr. CHARLES K. MILLS.—I saw the case in consultation, but have nothing especial to add. The case presented every appearance of acute delirium. It is to be

regretted that special precautions could not have been taken in making the autopsy, but at the same time I believe that the observations are of value.

Dr. F. X. DERCUM.—This report is interesting on account of the discovery of the pneumonococcus. We are told by German writers that the pneumonococcus is by far the most common germ found in certain forms of meningitis, especially certain purulent forms though it is usually associated with other forms of pyogenic bacteria. Its discovery in a case, the history of which corresponds with that of acute delirium, is interesting. We have on other occasions discussed the connection between acute delirium and meningitis, and I think that the concensus of opinion was that we had infection in many cases of acute delirium. In this case it looks as though there would have been purulent meningitis, had the patient lived long enough.

Dr. ERNEST LA PLACE.—I should like to add that the pneumonococcus of Fraenpel inhabits the mouth and is very common. We now think that pneumonia is due to the infection of the lung with a germ that is often present in the mouth. Although many examinations of the blood might not reveal the germ, yet now and then we find germs in the capillaries. If we puncture the finger and examine the blood, it is possible that we will find nothing. Even if in two or three hundred examinations we find nothing, we must remember that we have examined only a few drops of blood. There may be germs present, and if only one travels to the spot, that one is sufficient to start the infection.

Two Cases of Brain Tumor where Optic Neuritis was the only Positive Sign. Autopsies.

E. P. MORROW (*Journ. Am. Med. Assoc.*, October 21, 1893.)

The title of this paper suffices to indicate its contents. In the first case, the autopsy revealed a tumor, gliomatous in nature at the base of the middle temporal lobe. The second case had a very suggestive and straightforward history, viz., increasing unsteadiness of gait, attacks of vomiting, gradually progressive lethargy, eventuating in stupor, widely dilated pupils, eyes straight, beginning optic neuritis, progressive emaciation, and finally complete blindness. The autopsy revealed tumor of superior vermis of cerebellum extending equally over each lateral hemisphere, and in nature a glioma.

J. C.

Notices.

AMERICAN NEUROLOGICAL ASSOCIATION.

The twentieth annual meeting of the AMERICAN NEUROLOGICAL ASSOCIATION will be held in Washington, D. C., in connection with the CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS, on May 30th and 31st, and June 1st. There will be one session daily, from 10 A. M. to 1 P. M. This arrangement is necessary so as not to conflict with the meetings of the CONGRESS, which will take place in the afternoons. The ASSOCIATION will meet at the "COSMOS CLUB."

On Friday, June 1st, at 3.30 P. M., the Association will conduct the GENERAL SESSION OF THE CONGRESS. The subject of the "Influence of Infectious Processes on the Nervous System" will be discussed as follows:

"Pathology and Etiology," by Dr. Jas. J. Putnam Lecturer on Nervous Diseases in the Harvard Medical School; "The Relation to General Nervous Diseases," by Dr. E. C. Seguin, of New York; the "Relation to Mental Disease," by Dr. Charles K. Mills, Professor of Mental Diseases and of Medical Jurisprudence in the University of Pennsylvania; and "The Therapeutics," by Dr. F. X. Dercum, of Philadelphia.

The Secretary announces the following preliminary programme: "Report of a case of Spinal Syphilis and one of Intracranial Syphilis," by Dr. Landon Carter

Gray, of New York; "Merycism," by Dr. W. A. Hammond, of Washington, D. C.; "Inebriety as a Disease, Analytically Studied," by Dr. R. M. Phelps, of Rochester, Minn.; "A Case of Myxœdema Treated with Sheep's Thyroid," and "Craniectomy in a Child Two Years Old," by Dr. Samuel Ayres, of Pittsburg; "The Genesis of Hallucinations, Illusions and Delusions," by Dr. H. A. Tomlinson, of St. Peter; "A Case of Pontine Embolism with Paralysis of Ocular and of Orbiculo-palpebral Movements on One Side and of the Limbs on the Other, with Remarks on Focal Lesions in the Pons," by Dr. Charles K. Mills and Dr. John Zimmer, of Philadelphia; "A Brief Review of the Thyroid Theory in Graves' Disease. Report of a Case Treated by Thyroidectomy," by Dr. J. Arthur Booth, of New York; "On Crossed Knee-jerk," by Dr. Guy Hinsdale and Dr. J. Madison Taylor, of Philadelphia; "Some Problems Relating to the Cerebral Fissures," by Dr. Burt G. Wilder, of Ithaca; "The Insanity of Puberty and Adolescence," by Dr. H. R. Stedman, of Boston; "Lumbar Puncture as Recommended by Quincke, for the Relief of Brain Pressure," by Dr. William Browning, of Brooklyn; "Gastro-Intestinal Neurasthenia, *i. e.*, Nervous Dyspepsia," by Dr. Leonard Weber, of New York; "Exhibition of a Neurological Percussion Hammer," by Dr. Wm. C. Krauss, of Buffalo; "Cerebral Œdema," by Dr. George J. Preston, of Baltimore. "The Non-operative Treatment of Metatarsalgia," by Dr. V. P. Gibney, of New York; "A Case of Exophthalmic Goitre Cured by Thyroidectomy," by Dr. F. Peterson, of New York; "Cerebral Hæmorrhage, Notes on its Cause and Premonitory Symptoms," and "The Cortical Localization of the Cutaneous Sensations," by Dr. C. L. Dana, of New York; "Exhibition of Sections from the Mid-brain, Pons, Medulla and Spinal Cord from a case of Chronic Chorea," by Dr. James Hendrie Lloyd, of Philadelphia; "A case of Amyotrophic Lateral Sclerosis in a Child," by Dr. Charles Henry Brown, of New York.

Many other members have signified their intention of reading papers. There is every assurance, therefore, that the coming meeting will be one of the most successful in the history of the Association.

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The Wormley, corner of Fifteenth and H streets, Washington, D. C., is centrally located and within a block or two of all places of meeting. It is requested that it be made the headquarters and home of the American Neurological Association. Members of the Congress and friends are requested to write for their rooms at once to secure accommodation. The hotel is a select one, first class in all respects, and they guarantee to treat us all reasonably and give the best of attention.

Book Reviews.

LA PRATIQUE DES MALADIES DU SYSTÈME NERVEUX DANS
LES HÔPITAUX DE PARIS. (Therapeutical Guide to
the Practice of Nervous Diseases in the Hospitals of
Paris). By Prof. Paul Lefert, Vol. I., 16 mo., 285 pp.

The little volume forms part of a series called "The Practitioner's Manual," published by J. B. Baillière, 19, Rue Hautefeuille, Paris.

It is a compend, edited by Prof. Lefert, and comprises the therapeutical practice of about ninety practitioners, among whom are the following well-known physicians and surgeons: Babinski, Ballet, Bourneville, Brown-Sequard, Charcot, Debove, De'jerine, Dujardin-Beaumetz, Falret, Féré, Gilles de la Tourette, Jaffroy, Luys, Magnan, Pierre Marie, Constantin Paul, Raymond, Seglas, Sollier, Voisin, etc.

In this little work will be found the treatment of such affections which present themselves daily to the notice of every physician and surgeon. Such diseases as abasia, locomotor ataxia, chorea, contractions, delirium in its different forms, dipsomania, eclampsia, epilepsy, Basedow's disease, hysteria, insomnia, migraine, myelitis, neurasthenia, paralysis agitans, syringomyelia, and many others are fully treated of from the therapeutic standpoint.

It permits the busy physician to review rapidly the practice of many eminent men in any particular nervous affection he may have under consideration.

To facilitate the consultation of the book, there are appended two alphabetical tables, giving respectively the names of the diseases treated of, and of the various collaborators. To those familiar with the French language, this little volume is commended.

P. M.

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JUNE, 1894.

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Original Articles.

TRAUMATIC AFFECTIONS OF THE CERVICAL
REGION OF THE SPINAL CORD, SIMULAT-
ING SYRINGOMYELIA.¹

By JAMES HENDRIE LLOYD, A.M., M.D.,

Physician to the Philadelphia Hospital.

THE earlier writers, of what may be called the present epoch of clinical neurology, recognized and described a particular type of lesion of the spinal cord which was localized in the cervical enlargement and the pathological process underlying which was supposed to be always inflammatory. With his keen instinct for novel clinical types, Charcot² was among the first to recognize this affection, to give it an appropriate name, and to write an accurate description of it founded upon an autopsy. He called it *pachymeningitis cervicalis hypertrophica*, a name which indicates sufficiently both its nature and its seat. He was assisted in some of these observations by Joffroy, who subsequently wrote his thesis on this subject.³ It is but just, however, to say that before the time of these observers Abercrombie and then Gull,⁴ in England, had put on record similar cases,

¹ Read before the Philadelphia Neurological Society, March 26, 1894.

² Arch. de Physiologie, 1869 (with Joffroy).

³ De la Pachymeningite Cervicale Hypertrophique. Paris, 1873.

⁴ Guy's Hospital Reports.

but had failed to draw attention so accurately to their nature. Vulpian, subsequently, in his treatise on diseases of the nervous system, gave a concise description of this cervical affection, and later still, Burtin⁵ wrote his thesis on spinal pachymeningitis, in which he described two types: first, the cervical, second, the lumbar. This cervical type of cord-lesion has become so well recognized now that most of the text-books describe it, although there are still a few that do not appear to recognize this affection, which can scarcely be called uncommon, and which presents some problems both in physiology and in pathology which give it quite an unique importance. These problems relate, first, to the physiology of the conduction of sensation; second, to the differential diagnosis between several pathological states, each of which while distinct in itself, can produce a complexus of symptoms very similar to that produced by each of the others.

The symptoms of pachymeningitis cervicalis may be divided into two groups. (1) Those pertaining to the level of the cervical region, and (2) those which are produced by ascending and descending degenerations. Among the first are neuralgic pains in the occiput, neck, shoulders and arms; paralysis, with muscular atrophy, in the shoulders, arms and hands; and stiffness of the neck with deformity of the spine. Among the second are spastic paraplegia, with increased knee-jerks and clonus, without muscular atrophy in the legs, and with or without (often without) paralysis of the bladder and rectum. There are in addition various alterations of sensation both at the level of and below the cervical lesion. These alterations were not duly studied in the earlier cases; in fact, in most of the papers no mention is made of alteration of the various modes of sensation. One of Charcot's⁶ early papers is an exception, however, for in it there is express mention of thermo-anæsthesia as a symptom in one of his cases. It now seems certain that

⁵ *De la Pachymeningite Spinale*. Paris, 1878.

⁶ Charcot and Joffroy. *Op. cit.*

in the majority of these cases there is some alteration of sensation, and that this alteration may be the "dissociation symptom" described as peculiar to syringomyelia; *i. e.*, thermo-anæsthesia and analgesia without impairment necessarily of tactile sense, although this latter is occasionally modified in various areas. Other modifications, and combinations of modifications, of sensation will probably be found. Finally, there are sometimes trophic lesions in the bones and in the skin and nails, and there may be alterations in the pupils.

The pathology of pachymeningitis is familiar to those who have had opportunity to study lesions of the spinal cord.¹ As Vulpian describes this form of it, the cord is enlarged, filling the whole spinal canal in the cervical region. The enlargement is fusiform, and resistant on pressure, contrasting with the fluctuating sensation given by the cord in syringomyelia. The dura is much thickened and adherent, and the membranes separate from the cord with difficulty. The cord is sometimes fibrous, or it may be softened, and the gray and white matter cannot be distinguished easily. It contains no adventitious cavity as in syringomyelia. The nerve-roots are usually involved. As described by Vulpian and by Charcot in their own cases the appearances were not unlike those seen in tubercular pachymeningitis in the mid-dorsal region.

In presenting the brief histories of two patients this evening, I wish to emphasize the fact that both of them are traumatic cases, and both in men past the prime of life who had previously been in good health. It has been rather too much the custom in the past to regard cold as the most puissant agent in the production of all forms of pachymeningitis. That pre-eminence will probably be held henceforth by infection and by trauma. In presenting these cases, moreover, I purposely have called them simply examples of traumatic affections of the cervical cord, and I do not intend to commit myself to a

¹ See a paper, with illustrations, on "Pachymeningitis and Myelitis from Pott's Disease, etc.," by the writer, *University Medical Magazine*, Dec., '93.

statement that they are necessarily, or even probably, examples of an inflammatory process. They simply conform to a clinical type, due, in their cases, to trauma, and I confess that I am not satisfied in my own mind that they are not degenerative rather than inflammatory.

James G., aged 55, white, male, stonecutter by trade ; gives a negative family history. He has no personal history of syphilis or alcoholism.

In 1876, he fell from a scaffolding in front of the U. S. Mint in this city, striking the back of his neck. A fracture of the spinal column was diagnosticated. The entire body, including both arms and legs, was paralyzed ; breathing was embarrassed, and urination, but not defecation, was affected. It is reported that there was no marked disturbance of sensation below the waist, but the arms were anæsthetic. In three months he regained power in the legs ; the arms did not improve so quickly, the return of power in them being delayed for eight months. He was weak for over two years ; the neck was deformed ; the right leg a little feebler than the left. In three years he returned to his work as a stonemason, claiming now that he was as strong then and as able to do hard work as ever. This return to work is a very significant incident in the history of the case. In 1884, five years later, he fell again, this time from a ladder, a distance of fifteen feet, and struck the back of his head and his spine between the shoulders. He was unconscious for six hours. This fall was followed by a return of the paralysis of the legs and arms, loss of control over the bladder, and obstinate constipation. According to his statement there was no marked loss of sensation, but we do not know how carefully that was determined. There was no priapism. There was severe pain at the seat of injury, and headache for three months. Power returned to the legs in two months, in the arms slightly at the end of seven months. After confinement to bed for four months, the patient began to get about, but he has not been able to do any work since the second accident.

The present condition is as follows : The patient has advanced atrophy of the shoulder-muscles of both sides, including the deltoid, pectoralis major, infra and supraspinati and the lower part of the trapezius ; also of both the arm and forearm groups of muscles, and of almost



FIG. 1. A Case of Trauma of the Cervical Region of the Spinal Cord.

all the muscles of the hands. (See photograph, Fig. 1.) The thumb is in the position of extension of the metacarpal bone, flexion of the proximal and extension of the distal phalanx—not exactly the position assumed in “main-en-griffe,” which position of the hand is not present here, although what seems to be a commencement of it is seen in the middle and ring fingers. Fibrillary contractions are well marked in some of the wasted muscles. The myotatic irritability is much increased, especially in the biceps and in the extensors of the wrist. There is a little power of flexion and extension of the forearm, but except for this, the arms are quite paralyzed and useless. The muscles respond to both currents; there is some decrease in the most wasted muscles, and some hyperexcitability, with duration tetany, in others.

The patient has not head-drop.

Thermo-anæsthesia is marked on the right side, as shown in the schemata. It is more properly an anæsthesia to cold. The patient distinguishes heat in the affected areas, but everywhere in these areas calls cold hot. There is analgesia quite marked in some of the affected areas. This condition has practically remained unchanged for a year, very recent tests corresponding closely to those made one year ago.

It is thus seen that this patient presents a very close resemblance to a case of syringomyelia in the cervical enlargement. The motor and sensory lesions, their location and distribution, are closely analogous. Trophic and vasomotor lesions are alone wanting. The question, indeed, presents itself, whether the lesion is a true syringomyelia of traumatic origin. Bruhl,* in his monograph, recognizes trauma as a cause of syringomyelia, and several of his reported cases illustrate this etiology. One of Charcot's latest lectures[†] was on a case of cervical trauma, caused by a gun-shot, simulating syringomyelia. The injury was probably to one of the nerve-roots, and thermo-anæsthesia was a marked symptom. In our case, an autopsy alone, it seems to me, could determine the exact pathology.

The second case is briefly as follows:

Patrick C., aged 60 years; white, male, laborer; gives a negative family history. No syphilis. Thirty years ago, he was injured in the cervical and dorsal spine, by falling into a canal and being jammed between two canal boats. For treatment he was kept strapped to a long dorsal splint or platform for five weeks. In about three months he had so far recovered, that he returned to work, and continued to do hard work as a common laborer up to the time of his second accident. The second accident happened one year before his admission to the hospital, about three years ago. He was in good health at the time. While working with others digging out a clay-bank, part of the bank fell and buried him. He was under the slide for about one-half hour before he was rescued. He was unconscious and remained so for

* Contribution à l'étude de la Syringomyélie. Paris, 1890.

† Clinique des Maladies du Système Nerveux, Paris, 1892, p. 333.

twenty-four hours. On recovering consciousness, he was found to be paralyzed in the left arm and leg. The face was not involved, and there was no affection of speech. He was in the hospital for the accident about six months. Contractures gradually began in the affected arm and leg.



FIG. 4. A Case of Trauma of the Cervical region of the Spinal Cord.

His present condition is as follows: He has a marked angular deformity of the first dorsal spine, and less markedly of the second dorsal and of the seventh cervical. There is a depression also in the region of the lumbar vertebræ. The patient carries his head in a set position due to the stiffness and deformity in his neck; his chin almost rests upon his thorax (see photograph Fig. 4). There is paralysis decidedly more marked in the left arm and leg than in the right, with contracture of the hand and forearm. The shoulder-muscles, especially the infra and supra-spinati, are atrophied, as are also the

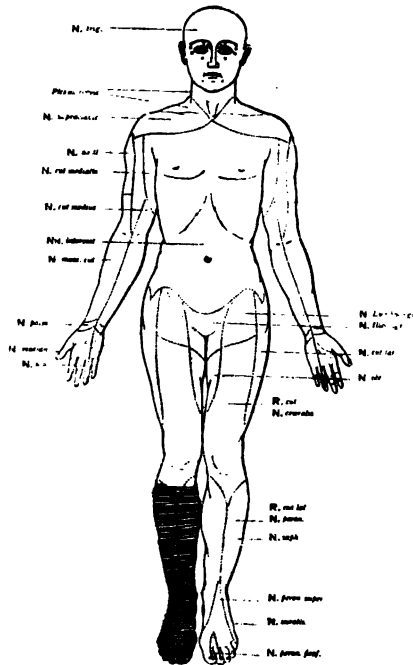


FIG. 7. Tactile Anæsthesia, varied with delayed sensation.

the habit of putting cold water on it to allay the heat, but he finds this remedy ineffectual—an interesting fact when it is recalled that he cannot distinguish cold from heat.

He is profoundly analgesic in the right arm and leg.

There is no involvement of the iris; no impairment of respiration, nor any interference with the innervation of the bladder.

It will be observed that the prominent feature in this case is its hemiplegic type. This is so pronounced that a hasty observer might be inclined to consider the case one of cerebral lesion. This view is opposed, however, by the history of the case, the direct effect of accident, the deformity of the spine, the absence of paralysis of the face or tongue, the sensory changes, and the atrophy and fibrillation in the paralyzed muscles. It follows closely the Brown-Sequard type—the paralysis of motion being on one side, the thermo-anæsthesia on the other. Its resemblance to syringomyelia is not so striking as that of the first case, yet it must be borne in mind that

there is an hemiplegic type of that disease. I once saw in my service at the Philadelphia Hospital a strict hemiplegia, the result of a lesion in the cervical cord, and some years ago, with Dr. Deaver, reported the case, in which the latter performed a laminectomy.

THE PHYSIOLOGY OF THE CONDUCTION OF SENSATION.

The hopeless confusion that has prevailed among physiologists upon the subject of the sensory paths in the spinal cord is known to all students. Their opinions are diametrically opposed to each other, and most of them are being contradicted by more recent and improved research. Among these opinions are the following¹⁰: That sensory impulses are transmitted by the lateral column of the opposite side; that they are transmitted by the lateral columns of the same side; that they are transmitted by the posterior columns of both sides; and, finally, that they are transmitted by the gray matter. Almost all of these statements are probably erroneous, unless amplified or modified as the case may be. The dictum of Brown-Sequard especially, that a hemi-section of the cord causes anæsthesia below the lesion on the opposite side of the body, a dictum that has been received unreservedly by neurologists for years past, must be regarded henceforth with grave suspicion. The causes for uncertainty and confusion have been of three kinds; the first has been the inability to control the secondary results of wounds before the days of aseptic surgery; the second has been the reliance placed entirely upon sensory responses in animals; the third has been the defect in histological study. All of these causes have either been removed or controlled to some extent. The methods of aseptic surgery have removed at least one element that formerly confused and even vitiated the results of experimenters.

The exact knowledge which we possess on the subject of sensory conduction in the cord is still limited, and when kept free from speculation and hypothesis

¹⁰ Quoted from Gotch. "Recent Research on the Spinal Cord." *Liverpool Medico-Chirurgical Journal*, vol. xiii. 1893.

may be summarized very briefly. It is derived from three sources: (1) From histology. (2) From experiment. (3) From disease.

Histology.—According to Ramon y. Cahal, the sensory nerve-fibre, entering by the posterior root from its cell of origin in the spinal ganglion, divides dichotomously (or in half) in the postero-external column, one branch passing upwards in the postero-internal column, the other downwards. From these longitudinal branches there arise short transverse branches, which penetrate the gray matter, and there end in the tufts or "arborisations," which characterize the peripheral or distributory ends of nerve-filaments. This course is proved further by the fact that if a posterior nerve root is cut the ascending degeneration is seen only in the posterior column of the same side (Gotch). It is promptly checked in the gray matter, where the terminal arborisations occur, and no ascending degeneration is seen anywhere on the opposite side (Gotch). The ascending degeneration ceases after travelling up the postero-internal column in the nuclei of the funiculus gracilis and funiculus cuneatus, which are ganglionic bodies, apparently beginning another stage of the sensory pathway. This view of the histology of the entering sensory nerve-fibre is adopted by Piersol, by Stirling and by Köllicker. In its simplicity it is very striking, and it leaves little room for the hypothesis that there are separate strands for tactile, thermal and painful impressions, at least in the posterior root. Certainly these impressions all enter the cord over identical fibres. It is lacking, absolutely, as far as it goes, in any proof of a sensory decussation low down in the cord. These tufts or arborisations, in which the sensory fibre ends in the gray matter, are apparently in close contact, but not in direct anatomical relation, with the ganglion cells, both in the posterior and anterior horns and in Clark's column, and from these ganglion-cells other nerve fibres are projected, the course of which, except those from Clark's column, which pass over to form the ascending cerebellar tract,

and those which pass out the anterior roots, is not very clear. Some of them pass up the antero-lateral columns, others decussate through the gray commissure with the elements of the opposite side; but the evidence from histology seems to be that these decussating fibres are relatively few, *i. e.*, in very small numerical proportion to that of the others. The contrast with the decussating fibres from the anterior horns, which run so conspicuously through the white commissure in front, is very striking.¹¹ Finally, it may be borne in mind that there is a very rich decussation of sensory fibres in the decussation of the fillet in the medulla oblongata, and that these are in direct line from the fibres in the posterior columns of the cord to the brain above.

Experiment.—Gotch¹² in his recent paper on the spinal cord makes the explicit statement that “recent physiological research shows that, in opposition to the views formerly advocated by many neurologists, the path for sensory conduction is almost entirely on the same side as that of the entering sensory nerves.” Mott showed that the monkey after hemisection of his cord would remove a clip from the skin of the leg opposite the lesion, but would allow the one on the leg on the side of the lesion to remain. In the experiments of Gotch and Horsley the sensory tests, which are always uncertain in animals, were dispensed with, and the capillary electrometer was used instead. This instrument registers the passage of a nerve-current, and in their experiments seemed to show that mild stimuli send impulses up the posterior columns of the same side. These are the paths of least resistance. These mild stimuli represent probably simple tactile impressions, passing up the most direct way; *i. e.*, by the posterior columns. More violent

¹¹ If the evidence from histology is to be accepted there is as much, or even more, reason to say that the motor fibres decussate at each level of the cord as there is to claim that the sensory fibres so decussate. The truth probably is that all these fibres, in both the anterior and posterior commissures, are purely commissural.

¹² *Op. cit.*

impressions, however, such as would be made by heat, cold and pain, radiate through into the gray matter of the cord. Here they have a path of greater resistance (as we have seen histologically, a path not of direct continuity, but through the tufts of fibrils of the sensory fibres, hence passing in some way to the cells of the gray matter), and through the gray matter they possibly emerge again into the white conducting tracts, even of the lateral, and possibly of the opposite, posterior column. If accurate, this would mean that pain and painful temperature sensations are only of different degree, and hence excite a wider and more complex nervous mechanism than simple touch. From the clinical standpoint, the fact of separate alterations of the various modes of sensation by different diseases might thus be explained.

Disease.—In this connection I desire simply to call attention briefly to the fact that not only diseases involving extensively the gray matter, as syringomyelia, cause alterations in the temperature sense, but also that diseases of peripheral parts, as pachymeningitis and neuritis, may also cause them. The patients whose cases I report to-night are possibly mixed cases of injury both to the cord and to the nerve-roots.

An Addition to the Etiology of Degenerative Changes in the Cord.—Dr. Fr. Tuczek, in the *Prager Medicinische Wochenschrift*, gives an interesting account of some recent investigations of his to determine the possible relation between ergotism and dementia paralytica. One fact brought to notice was the association of pellagra in patients who were suffering from nervous symptoms induced by ergot. Histological examination of the nervous system in cases where death had ensued, with pellagra present, revealed marked degenerative changes in the spinal cord, especially in the posterior and lateral columns. The author believed that his studies were sufficiently confirmative to make the statement that the poison from the diseased grain acted in such a manner upon the nervous system, as to produce degenerative changes in the spinal cord, and that an important addition was thereby made to the etiology of cord disease. B. M.

NOTES ON TWO ADDITIONAL CASES OF THYROIDECTOMY FOR GRAVES'S DISEASE.

By JAMES J. PUTNAM, M.D.,

Professor of Diseases of the Nervous System, Harvard Medical School.

SINCE my former paper was written (see this JOURNAL, December, 1893), two cases have come to my notice which are of considerable importance with regard to some of the points already discussed, especially as indicating the dangers attending the early days after operation, and the possibility of a relapse after a long interval of comparative health. The later history of the case already reported is also of interest.

The first case is that of a young girl, sixteen years old, who presented herself in the autumn of 1893 at the Out-Patient-Department of the Massachusetts General Hospital. She had been sick for four years, and showed the signs and symptoms of Graves's disease in a typical form,—goitre, exophthalmus, tachycardia, tremor, suffusion of the face, mental irritability. An intermittent swelling of the thyroid had been the first symptom, but after an attack of scarlet fever the enlargement became permanent and the other symptoms appeared. She had already had the advantage of hospital treatment in another city, and had made external applications of iodine for a long time without effect, but in order to give a thorough trial to rest and other measures, admission was obtained for her at the excellent private hospital of the Good Samaritan, with the opportunity of attending daily at the Massachusetts General Hospital for electrical treatment.

After three months of this treatment she entered the wards of the Massachusetts General Hospital for operation, and the following notes are taken from the surgical records.

At her entrance, her temperature was 100.2° F.; pulse 140; respiration 28; the appetite and digestion were in good order; general nutrition good. Nausea was said to be present frequently in the morning; and there had been no catamenia for four months. In the anterior

cervical region a tumor was seen lying on both sides of the median line, but more prominent on the right side than on the left; a slight groove separated the two lobes. Both lobes were carefully measured. The tumor was soft to the touch except for a few harder portions. A distinct thrill was felt on palpation, synchronously with the heart-beat and a systolic blowing murmur was heard with the stethoscope. The tumor moved up and down with the trachea when the patient swallowed. The heart-sounds were normal, and the respiration substantially normal. Nothing abnormal was found in the abdomen. The pulse was regular, of fair strength and volume.

The operation was done on February 2, 1894, by Dr. J. C. Warren, with whose permission these notes are published. An incision five inches long was made on the right side of the neck over the tumor and parallel with the anterior border. The tumor was found to be covered with large veins. The upper border was freed by a blunt dissector and the knife. The superior thyroid artery was tied and cut. The dissection was then continued downward alternately on the two sides of the tumor, bleeding points being seized with the hæmostatic forceps. The under border was then freed, and finally the posterior surface. A ligature was placed around the isthmus of the tumor and the right half removed. There was only a moderate amount of bleeding, and this was almost entirely from the veins on the posterior surface of the tumor.

The bleeding points were tied with silk. There was a troublesome oozing from the surface of the wound, which was finally controlled by pressure and ligatures. The wound was sewed up with interrupted worm-gut sutures, a small gauze wick being left in, about an inch from the lower angle. A dry dressing was put on, which was held in place by special nurses during the recovery from the ether, and bandaged on during the evening of the same day. The patient made a good recovery from the ether. During the recovery from the ether and on the following day the patient was somewhat nervous and excited, calling frequently for the nurses and wanting to get out of bed. She had a slight cough, but no dyspnoea.

February 6th. Gauze removed. The wound looked in perfect condition, and the dressing was not stained through. Skin clean and dry and without redness.

February 7th. Patient doing well; much more quiet; vomited three times during the night.

February 8th. Doing well except for vomiting and restlessness. Last night was given trional, gr. XV.; a sub-cutaneous injection of morphia, gr. $\frac{1}{4}$ with gr. $\frac{1}{100}$ of hydro-bromate of hyoscine; some retching, but no vomiting during the night. Nutritive enema ordered to be given every four hours, and champagne and ice by the stomach. Very little food has been retained in the stomach since the operation. Patient complains of hunger. Wound looks perfectly healthy.

February 9th. Very restless during the early part of the night. Nutritive enema at ten o'clock and again at two o'clock; both rejected.

At ten minutes past two in the morning the patient was reported for restlessness. She was tossing about in the bed, not delirious, but talking irrationally; skin warm and sweating; she coughed somewhat and raised a little loose mucus; coarse tracheal rales were heard; the pulse (which had been much more rapid since the operation than before) was 165, but of fair strength. An injection of sulphate of morphine gr. $\frac{1}{4}$ with gr. $\frac{1}{100}$ of hydro-bromate of hyoscine, which had apparently worked well the night before, was given at twenty minutes past two. After this she slept for two hours. At 5 A.M., the night superintendent of nurses felt her pulse, but noted no change. At five minutes past five the night nurse found the pulse very rapid and weak, and immediately reported the fact. Five minutes later, before the house surgeon could reach her, she had died.

An examination of the pulse and temperature record gives the following facts: The temperature during the five days preceding the operation had ranged from 98° and 100.3°, the curve being very irregular; the pulse had ranged between 110 and 140. On the morning of the operation the temperature was 98.6°; pulse 118. On the night of the operation the temperature had gone up to 102.6°. It had fallen by the morning to 99.5°, but rose again slightly toward night.

The following morning, the second day after the operation, the temperature was 98.4° and at night 98.5°. On the morning of February 8th, the day before her death, the temperature was 100.7° and the evening temperature was the same. At the time of her death, at three o'clock in the morning, it had risen to 105.2°. The pulse rose after the operation to 145 and the next day to

164, and never fell below 155 after this time. Three hours before her death it was 165.

In view of the possibility that the hydro-bromate of hyoscine acted unfavorably on the heart it is worth noting that both pulse and temperature were quite high on the morning of the day before the patient's death. The evening and morning temperature of that day were the same, 100.7°. The pulse had fallen slightly during the course of the day.

The second case is that of a young woman, 20 years of age, recently referred to me by Dr. Lindström, who was operated on about two years ago by Dr. Lossander, of Stockholm. The first symptoms had made their appearance nearly a year previously, and two months after a nervous shock. In other respect the patient had been well and strong. The goitre was the first symptom, but at the time of the operation most of the classical signs and symptoms of Graves's disease were present. The final effect of the operation seems to have been excellent, and the patient remained able to work until three weeks ago, when she began to feel short of breath in going over the stairs, and a great deal of palpitation on exertion, without known cause. The thyroid has also of late increased in size.

At the time of my examination the pulse was 120; the eyes slightly prominent, though not so much so, she says, as before the operation; a jerky tremor of the hands was also present.

Her dyspnoea and palpitation have not been benefited by a several weeks' treatment of belladonna and iron.

Besides affording this history of a relapse, this case is interesting on account of the symptoms during the few days immediately following the operation, which were developed by closely questioning the patient. She recalls having been very sick with fever, pain in the chest, nausea and vomiting, so that she was not able to take anything for a day or two but water and ice. She stayed in the hospital at Stockholm for four weeks and then attended as an out-patient for three weeks more, and afterwards, at longer intervals, to have her wounds dressed. Five weeks later she was again obliged to enter the hospital because her heart troubled her so much, and there she stayed six weeks. Three weeks after leaving the hospital for the second time she improved so much that she was able to go to work.

From the history of these three cases which I have observed, the belief has forced itself upon my mind that the danger of thyroidectomy in Graves's disease is greater than the reports hitherto published would seem to indicate. *La Semaine Médicale*, for January, 1894, contains an interesting paper by Dr. Lancereaux on rapid and sudden death due to disturbance of the nervous system, in the course of which he speaks of several cases of heart failure due to disturbance of the nervous system, and comments on the great value of morphine in counteracting the influences at work. This is of special interest in view of the observations published within this past year on the use of chloroform in the collapse of acute insolation, the action of the remedy in both cases being attributable to the production of a sort of anæsthesia of the cardiac centres, which prevents them from suffering under the toxic influences at work. In one of Lancereaux's cases the temperature rose rapidly just before death, as in the case here reported.

In view of the practical interest of the subject, a few words on the case reported in my earlier paper may be in place.

As regards general strength, the patient considers herself better, her appearance is somewhat more natural and her manner less agitated.

On the other hand, the pulse-rate still ranges in the neighborhood of 130, and the exophthalmus is but little less than before the operation. The jerky tremor is still present in slight degree, though much less marked than formerly.

The stump of the goitre, which had been growing smaller until of late, is now again increasing in size.

The patient is able to do a moderate amount of light work, but is far from strong. The voice is clear, but rather weak, and the paralysis of one vocal cord still persists unchanged, the other cord having to cross the median line in phonation.

I would again call attention to the possibility that some of these symptoms of the early days of operation may be due to poisoning from thyroid secretions. This idea suggested itself to Dr. J. C. Warren and myself in connection with the case reported in the former paper, because at the time she was so very sick, with a temperature of 106° and a pulse of 200, and yet a perfectly aseptic wound, a small quantity of gelatinous se-

cretion was found upon the dressing, having oozed from the cut.

In talking about this case with Dr. Warren, he told me that he had put a ligature strongly about the isthmus of the gland before cutting off the right half, and he suggested that in this way an unusual quantity of the secretion might have been squeezed out. Possibly this explanation would account in part for the fact that these serious symptoms are not always met with after thyroidectomy. It is probable that they are more common in cases of Graves's disease than of ordinary goitre, on account of the excessive irritable weakness of the nervous system, especially as regards the cardiac centres. A certain amount of this nervous irritability is seen even in cases of ordinary goitre. In one case of this sort, where thyroidectomy was performed by Dr. Warren, a high degree of tachycardia came on before the operation and lasted for some days, without being attended by other bad symptoms. Similar attacks had occurred occasionally before the operation was performed.

A recent paper by Rehn, who was one of the pioneers in the surgical treatment of Graves's disease, reports encouraging results on the whole, but also gives the record of four fatal cases. Rehn thinks that where the cardiac changes, or the nervous excitability of the heart has assumed considerable proportions, the danger of operation is considerably increased.

A CASE OF PARALYSIS AGITANS, SHOWING- UNUSUAL CONTRACTIONS.

By FRANK P. NORBURY, M.D.,

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MRS. R., aged 54 years, insane six years; cause, change of life; was admitted to the Illinois Central Hospital for the Insane, August, 189-. She was emotional and deluded, presenting the usual symptoms of chronic delusional mania, with periodical disturbed spells. The family history was not complete. A sister was insane and is a patient at the same hospital. No special nervous symptoms were noticed on admission, and not until seven months later, were the prodromes of paralysis agitans, noticed.

Her gait first became slower, then the movements of her hands were involved. As she spent the greater portion of her quiet intervals in knitting, the interference with her ordinary dextrous movements was noticed by herself and others.

Trembling next appeared, followed by rigidity. Her lower limbs were invaded about the same time, then came restriction of bodily movements, the block of wood type, spoken of by Dercum, being assumed. Facial movements became difficult; the muscles were fixed and eyes staring.

The intellect was dulled, slowness of perception with inability to appreciate surroundings, being especially noticed. Six months later, she was helpless and bed-ridden; her hands were flexed, left leg semi-flexed, trunk slightly rotated to the left. Speech was indistinct, there was drivelling of saliva and partial opening of the mouth. Tremor, continuous and regular, increased, but during the last months it disappeared with the onset of fixation of the contracted muscles.

The contractions gradually became more pronounced, and permanent fixation resulted. This rigidity and fixation involved the flexor muscles of the hips, thighs, fore arms, legs, hands, feet, fingers and toes. The right thigh was drawn across the body and over the left leg,



which was flexed upon the thigh, and the thigh upon the body. The flexed fingers were rigid, they overlapped each other in the left hand.

The photograph shows the condition of contractions and rigidity at the time of death, which occurred ten months after the first symptoms of paralysis agitans appeared. Nutrition commenced to suffer about three months before death; emaciation was marked at death. Wherever one limb crossed, or came in contact with another, bed sores formed; they also formed on the back and hips, all in spite of special care and cleanliness. Helpless and demented this pitiable subject lived for three months in this deplorable condition.

This case being an unusual one, the writer thought it worthy of reporting.

A Case of Traumatic Tetanus in an Aboriginal Australian Ending in Recovery.—(*Australasian Medical Gazette*, No. 12, 1894). Dr. James McNish, of North Queensland, Australia, reports a case of traumatic tetanus in an aboriginal Australian, which was treated successfully by bromide of potash and chloral, fifteen grains of the former and ten of the latter every three hours.

F. H. P.

IS LOVE A DISEASE?

By JOHN FORD BARBOUR, M.D.,

Louisville, Ky.

THERE has been hitherto an unconquerable aversion on the part of mankind to the application of scientific methods to the study of mental phenomena, and it is only of late years that we have begun the real investigation of such matters.

We now admit into our list of diseases many conditions which were formerly regarded as idiosyncrasies or vices. Not so many years ago most of us rather smiled at the idea of kleptomania; but what intelligent person now doubts its existence? Alcoholismus, pyromania, suicidal and homicidal mania, have passed through the same periods of ridicule and doubt in the public mind. Who can doubt that there are people who cannot help lying? In whom this vice amounts to an actual disease? These unfortunates will lie not only when it can not advantage them, but when they know that it will be to their own hurt. Certainly there be pseudomenomaniacs.

The last group of mental phenomena to be brought under the category of disease is that extensive family of nervous affections known as "morbid fears." These have been defined by Dr. George M. Beard as follows:

"The patient knows that there is no just objective ground for his fears, but his emotional nature, under the influence of his exhausted nervous condition, overcomes his reason and his will." One of the commonest of these morbid fears, and one that is familiar to nearly everyone, is fear of the cat (ailourophobia). Other common forms are, fear of lightning (astraphobia), fear of woman (gynephobia), fear of disease (pathophobia), etc.

There is another equally large group of nervous affections which may be termed the morbid predilections. Under this head are included all those singular fancies

for what is repulsive, indifferent, or only of moderate importance to the rest of mankind. It embraces, therefore, miserliness, hobbies, cannibalism, kynolatry, uncontrollable passions for collecting rare coins, old books, autographs, pipes, insects, fossils, scalps, hearts, etc.

From a consideration of these facts we may formulate the following laws, viz.:

Any decided and utterly irrational aversion for an object, which is not sustained by the general sense of mankind is morbid.

And its logical converse :

Any decided and utterly irrational predilection for an object, which is not sustained by the general sense of mankind, is morbid.

To this latter class belongs the disease under discussion. The main feature that distinguishes it is a *marked perversion, or even negation, of the judgment causing the patient to conceive a decided and utterly irrational predilection for a certain object amongst a great class of similar objects, which said object, to the general sense of mankind, does not materially differ from many others of the same class.*

To adopt Dr. Beard's language concerning the morbid fears: "The patient knows that there is no just objective ground for his predilection, but his emotional nature overcomes his reason and his will."

Occurring as it does almost universally, it is impossible to give any general description which will be applicable to all cases. The first attack usually occurs at the time of that great revolution which converts the boy into a man and the girl into a woman. The symptoms are about as follows: A gentle languor pervades the frame; the respiration becomes sighing; there is a tendency to suffusion of the countenance at the mere sight or mention of the object of predilection; accompanying this is a great confusion of thought and language, probably caused by the same nervous disturbance that induces the suffusion of countenance. There is loss of appetite and insomnia. Sometimes they are careless of their persons

and estates; "their beards flag and they have no more care of **pranking** themselves nor of business." Sometimes it is quite the reverse, as Heinsius wrote Primierus: "He must mark above all things what hats, bands, doublets, breeches, are in fashion, how to cut his beard and wear his locks, to turn up his moustachios and curl his head, prune his pickitivant, or if he wear it abroad, that the east side be correspondent to the west."

These patients are "full of fear, anxiety, doubt, care, peevishness, suspicion, apt to mistake, amplify, too credulous sometimes, too full of hope and confidence, and then again unapt to believe or entertain good news. These doubts, anxieties, suspicions, are the least part of their torment; they break many times from passions to actions, speak fair and flatter, now most obsequious and willing, by-and-by they are averse, wrangle, fight, swear, quarrel, laugh, weep," etc. Verily, a disease, a disease!

The emotional and poetical faculties are powerfully stimulated, so that persons in this condition have often been found guilty of attempted poetry whom nothing else would have induced to "drop into verse." The patient may become moody and avoid society. There are delusions with regard to the object of predilection, using the term "delusions" in its technical sense, as defined by Maudsley:

"And if, though perceiving external objects as they really exist, he (*i. e.*, the lunatic), conceives such notions of the properties and relations of things as are absurd to the common sense of mankind, he has an insane conception or a delusion—the ground of the falseness of the conception being not error, but a morbid condition."

Most of the subjective symptoms are referred by the patient to the central organ of circulation; there is a disposition to violent palpitation of the heart, and a sensation at times as if it had been displaced upwards into the larynx.

The disease assumes one of three forms,—acute, sub-acute or chronic—according to the age, sex, and disposition of the patient. Amongst women it is usually sub-

acute, more rarely acute, and scarcely ever chronic. Amongst men it is usually acute while they are young. but tends to assume a chronic form as they grow older. Following the general law of disease, the acute and subacute forms are self-limited, while the chronic runs on indefinitely with occasional exacerbations.

Many of these patients are willing to admit that the condition is one of temporary aberration of intellect, and they frequently speak of it as being under a charm or a spell. Says an ancient writer upon this point: "After they return unto themselves, by some discontinuance or better advice, they will wonder at their own folly, madness, stupidity, blindness, be much abashed, and call it an idle thing, condemn themselves that ever they should be so besotted or misled; and be heartily glad they have so happily escaped." Does not the reader's own experience justify the truth of this quotation?

A severe attack of the acute variety generally grants exemption from subsequent attacks, while the subacute form seems rather to predispose to them.

Little is known of the causation of this disease. Heredity is undoubtedly a predisposing cause, some inherited vulnerability of the nerve centres controlling the action of the heart.

Idleness and mental vacuity have a very decided influence in this respect. Theophrastus defines it as "*otiosi animi affectus*," an affection of an idle mind. Gordonius says that it is the proper passion of the nobility. Savonarola assigns it almost exclusively to "monks, friars, women, and religious persons, because they live solitarily, fare daintily and do nothing."

Domestic training is likewise a potent factor in its production. Every child, and especially every female child, is reared with the foolish idea that this "complaint" is unavoidable, and that sooner or later everyone must succumb to its malignant influence.

The state of the weather has a decided influence in this particular; it is much more prevalent at the onset of warm weather. Some patients, indeed, suffer from

periodical attacks of it every spring.

This disease is very infectious. It is probably communicated by arrow-shaped germs which emanate from the ocular organs of the predilectee and enter the system of the predilecter through the same organs.

Certain kinds of food, such as highly phosphorized meats, rich gravies, piquant sauces, condiments, pastry, alcoholic liquors, deserts, etc., may be regarded as injurious in this respect. The ancients mention the following articles of diet as fostering a tendency towards this disease: "Generous wine in particular, beans, highly flavored roots of all sorts and freely sprinkled with pepper, esculent thistles, lettuce, colewort, leeks, onions, fish nut, sweet almonds, cordials, syrups, snails, shell fish, eggs, small game," etc., etc.

Great indulgence in social amusements, excessive novel-reading, theatre-going, and round-dancing, late hours, slothful indulgence, soft beds and easy chairs—in short, general luxurious surroundings, lower the power of resistance of the mind and render it susceptible to the disease.

There is usually no difficulty in arriving at the diagnosis in these cases, as the patient can rarely conceal his deplorable state of mind, or even attempts to do so. In suspected cases, particular attention should be paid to the pulse whilst the patient is in the presence of the object of predilection. Avicenna states that under these circumstances, "their pulse is inordinate and swift." Valeriola gives as symptoms, "difference of pulse, neglect of business, want of sleep, often sighs, blushings." The pulse is a more certain guide than the countenance. Hence Josephus Struthius, in the fifth book and seventeenth chapter of his "Doctrine of Pulses," states that the way to detect this malady is, with the finger on the pulse, to mention several objects whom you suspect the patient of predilecting, and when the right one is reached, there will be an instantaneous and unmistakable disturbance of the pulse.

A very important question is, what are the results of

this disease when not modified by treatment? It has already been stated that it is usually self-limited, so that it depends very much upon the previous condition of the patient whether he shall come through it in good shape or not. If he has any hereditary tendency towards other disease, it may be developed by the mental disturbance and loss of appetite and sleep consequent upon the condition in question, and he may go into consumption, or become insane or epileptic. Not much is to be feared from the subacute and chronic cases because of the mild character of the symptoms in such cases, but the acute form may be followed by the most disastrous results. The period of time required for the acute variety to run its course varies somewhat; it is ordinarily six weeks. When it is unusually violent in character, or runs a protracted course, it is attended with great danger. "For if this passion continues," says Aelian Montaltus, "it makes the blood hot, thick and black; and if the inflammation get into the brain, with continual meditation and waking, it so dries it up that madness follows, or else they make away with themselves." This madness frequently assumes the form of suicidal, or homicidal mania, particularly when there is failure to obtain the object of predilection. Much of the blame in these cases must be laid at the door of erroneous youthful training, by which these patients have been taught to believe that they can never have but one real object of predilection, failure in the attainment of whom will inevitably mar their happiness for life, render them fit subjects for the deepest sympathy, and be an all-sufficient excuse for an immense deal of melancholy loafing and posing. Many of these results would be avoided, or mitigated, if these patients were only taught the truth about such matters, viz., that this condition need exercise no more influence over their lives than they themselves permit; that the superiorities of the object of predilection are entirely subjective, as they will admit if they will only be content to wait until their judgment returns to them; and that they are fit subjects for ridicule or medical treatment rather than for sympathy.

Dear reader, laying aside all prejudice, do you not honestly believe these propositions? I believe that in your heart of hearts you do; but these patients and their upholders, sympathizers, and objects of predilection, constitute such an overwhelming majority, that you have not the courage to be heterodox. This monstrous delusion has even been assigned by its blind adherents, as the cause of the revolution of the earth upon its axis.

Most will receive with incredulity or laughter, the statement that this affection without question, if it be taken in time, may be amended by many good remedies. But first, as a matter of interest and curiosity, let us see what the ancients have said respecting the treatment of this disease.

Guianerius prescribes for his patient "to go with hair-cloth next his skin, to go barefooted and bare-legged in cold weather, to whip himself now and then, as monks do, but above all, to fast. Not with sweet wine, mutton and pottage, as many of those tenderbellies do, howsoever they put on lenten faces and whatsoever they pretend, but from all manner of meat."

Wine must be entirely abstained from, as also all those articles of diet mentioned as provocatives. Cucumbers, melons, purslain, water-lillies, rue, woodbine, and ammi, may be eaten freely—if you can get them. In some cases, where they are very low and dejected, a cup of wine and full diet are not amiss. "One that hath, as it were, lost himself, must be called home as a traveller, by music, feasting, good wine, if need be to drunkenness itself, which many so much commend for the easing of the mind, all kinds of sports and merriments, to see fair pictures, hangings, buildings, pleasant fields, orchards, gardens, groves, ponds, pools, rivers, fishing, fowling, hawking, hunting, to hear merry tales and pleasant discourses, reading, to use exercise till he sweat, that [new spirits may succeed, or to be diverted till he be fully weaned and habituated into another course."

What a delightful prescription!

A story is told of a certain noble lady who was affected with this disease, to whom, among other things, her physician prescribed that she should wear a leaden plate, pierced with many holes, upon her back for twenty days. He commanded her to eat as sparingly as possible, and frequently to chew prepared coriander and lettuce and sorrel seed; and by these means he cured her.

The following is an old formula which has at least the authority of great age: "Take of lettuce, purslain and coriander, each a drachm; of dried mint, half a drachm; of the whitest sugar, four ounces. All the ingredients are to be thoroughly mixed and made into one hundred lozenges, one of which is to be taken in the morning on arising."

But much pains may be spared by withstanding the beginnings. Let him who feels the approach of the malady, "rouse up reason, stupified almost, fortify his heart by all means, and shut up all those passages by which it may have entrance." If he feels himself already ensnared, let him remember that the better part of valor is discretion, and flee his O. of P. Says Jason Pratensis, "The best remedy is to get thee gone (*absquatulare*);" and so all the others advise.

Briefly now to discuss the modern treatment of the disease.

Change of climate is a very valuable measure; in chronic cases this change should be permanent.

Brilliant results may sometimes be obtained on the principle of supersession; that is by superseding one O. of P. by another, and then curing the patient of the last one.

Everything should be done to harden the patient both mentally and physically. He should sleep upon a hair mattress, should have no enervating easy chairs, should rise early and bathe in cold water the year around, should take much exercise and use the flesh-brush. For hardening him mentally, let him study medicine, mathe-

matics, and the other exact sciences, eschew poetry and fiction.

If these means fail, severer measures may be adopted: the hot iron may be applied along the spine and the head may be shaved and pustulating ointment rubbed into the scalp.

Finally, when everything has been done, and the patient is none the better, but rather the worse, as a *dernier ressort*, recourse may be had to the dear expedient of incantation. This rite is very ancient, having existed, in one form or another, from time immemorial. This incantation is supposed in some mysterious manner to convert a visible duality into a transcendental unity. It is needless to remark that mathematics, physics, and everyday experience are utterly at variance with this superstition.

The effect of this incantation over the disease is remarkable, all the symptoms disappearing in a few days or weeks, the delusions being the first to go.

* * * * *

Heu me miserum! That the ability to discuss, diagnose, prognose, and treat such a disease should not protect one against its ravages!

Asylum Notes.

BY FRANK P. NORBURY, M.D.

Jacksonville, Ill.

Annual Report of the Maryland Hospital for the Insane for 1893.

Dr. Geo. H. Rohé, Superintendent. This report is readable, interesting and scientific.

Appendix "A" is a continuation of the observations made by Dr. Rohé on the results of surgical interference in pelvic diseases in insane females. He finds much encouragement in the fact that recoveries have followed such interference, and marked improvement has resulted in other cases.

The work has not been carried on far enough to make the statistics valuable, but, nevertheless, we believe Dr. Rohé "has struck the right lead" in operative procedure in such cases, when no organic brain disease exists.

Hystero-epilepsy has been improved and cases cured by ovariectomy. Even hysterectomy is not without the field of justifiable operations, if the indications favor it. We advise those interested to carefully peruse this report.

Appendix "B."—"The Hypodermic Injection of Sulphate of Magnesium as a Purgative," by J. Percy Wade, M. D., Assistant Physician, of which the following is a summary:

Forty-six patients were selected, who suffered from habitual constipation, and required from 2 ounces to 3 ounces of a saturated solution of magnesium sulphate to produce one or more free movements of the bowels.

A two per cent. solution of Epsom salts in sterilized water was used. The hypodermic syringe employed had a capacity of two drachms, and when not in use was kept in carbolized oil. Just previous to use, the needle was sterilized by steam. The dose varied from 1.86 grains to 4.5 grains. The smaller dose was first tried, and at each subsequent injection was increased $\frac{1}{2}$ grain, in order to determine whether a slight increase in the dose would cause a free evacuation. It was found that the small dose acted as efficiently as the slightly larger.

The site of the injection was the left arm, at the outer aspect, midway between the elbow and shoulder. In none of the cases was there any local reaction at the point of injection.

The injection was made 100 times in the 46 patients, and was successful 67 times, or 67%, and failed to act 33 times, or in 33%.

In 53 injections it produced one evacuation of the bowels; in ten, it produced two movements, and in four, it produced three evacuations.

In only two patients were the injections a constant failure, and both of the patients were of the class of melancholia with habitual constipation, who resisted nearly all purgatives.

In nine cases the injection of 1.15 grains—one-half the average dose—was repeated in one hour, and caused two evacuations in five cases; in one, three movements; in two, one; in one, failed to act at all. This action shows that a small dose repeated in a short time has a better effect than one single dose of larger size.

In ten selected cases a comparison was made between the hypodermic injection of magnesium sulphate and the exhibition of a saturated solution by the mouth. In seven cases, or 70%, the injection produced free evacuation; whereas one ounce given by the mouth acted in only three, or 30%.

The shortest time for the injection to produce an evacuation was three hours; the longest, fourteen hours—the average being seven hours.

As to the consistency of the stools—45 may be said to have been watery, resembling those produced by a free saline purgative; in 11, they were mucilaginous in character, and the remaining 11 were the ordinary stools.

No action was noticed upon the general system following the injection.

In 50 injections noticed $\frac{1}{2}$ hour after the injection no rise in temperature, pulse or respiration occurred.

The indications for the use of the drug by hypodermic injection are obvious. In cases of gastric inflammation, where a purgative is required and the stomach rebels; in abdominal surgery, where a purgative by the mouth is apt to cause vomiting, and in cases where the patient is unconscious and unable to swallow, as in apoplexy, the hypodermic use of this purgative would be valuable.

. In none of the 46 cases did such indications arise, but the work was done as an experiment and to demonstrate the value of the drug as a therapeutic agent when given subcutaneously. No explanation is offered as to its physiological action. That it does act when so given is a fact.

The effect could not be attributed to suggestion, as the patients did not know with what object the injections were made; besides, insane patients are notoriously difficult to influence by suggestion.

Appendix "C" is a valuable contribution on the subcutaneous "Infusion of a Nutritive Salt Solution in Cases of Refusal or Inability to Take Food," by Milton D. Norris, M. D., Assistant Physician. Experience with this class of cases can only give one the idea of the true worth of this method of feeding, which, it is claimed, originated with Dr. Rohé. The Reviewer, however, experimented in this line several years ago, but did not meet with the happy results claimed by Dr. Norris.

His method is as follows:

The solution used was composed of 12 to 14 ounces of sterilized water, to which, after partially cooling, were added the whites of two eggs and 30 grains of common salt. This was filtered through cheese cloth. The resulting liquid had about the appearance and consistency of simple syrup, and would coagulate on being heated. Only the whites of eggs were used, because they do not require any previous digestion, but can be directly assimilated.

An ordinary stomach tube and a medium sized aspirating needle were the only instruments employed in giving the infusion. No force except that of gravity, was used, and generally only one puncture of the needle was required. The loose tissue over the gluteal region was always selected as the point of puncture, and the time required to inject the 14 ounces was never over 15 minutes. The injection of this large quantity of fluid in such a limited area would, of course, make a considerable swelling, but this would disappear in an hour, and there was not a single case in which any bad effect followed the injection.

The subcutaneous method has the advantage over the intravenous of a gradual absorption of the fluid, and, therefore, no danger of overwhelming the heart, besides, there is no danger of emboli or the admission of air into the veins, and this method can be used by any

one with a little care, while the intravenous can only be used by the skillful.

It is well known to every alienist that certain cases of melancholia with refusal of food, not due to delusions, will gradually emaciate and die in spite of the most persistent artificial feeding, and it is in these cases that the subcutaneous infusion of nourishment will find its greatest use.

In case of delirium tremens where the stomach will not tolerate anything, this method affords an excellent means of keeping up the patient's strength during the three or four days that the stomach is resting; also in severe cases of vomiting, of pregnancy, and any case where the stomach must have rest, this method of giving nourishment will be useful.

It has the advantage over rectal feeding of not being so dangerous nor so disagreeable to the patient and of being more certain in its effects, besides it stimulates the heart and increases arterial tension, which is important in cases that are very low, as most of those will be in which this method is indicated.

This method of administering nourishment can be used to advantage in a considerable number of cases by both the alienist and the general practitioner.

Neuro-Trophic Disease.—A case is reported by Sir Dyce Duckworth, M.D., in the *British Journal of Dermatology*, for December, 1893, in which the patient, three months after recovering from a severe attack of enteric fever, came to him complaining of extreme sensitiveness over the region of the thighs and over the malleoli. Examination of the parts revealed several longitudinal stripes of linear atrophy and hyperæsthesia over the legs. Careful investigation disclosed no other evidence of nerve lesion. The occurrence of lineæ atrophicæ as a sequela of enteric fever have been previously reported. The atrophy together with the hyperæsthesia pointed, the author thought, to the neuro-trophic nature of the lesion, and indicated that both trophic and sensory branches of nerves might thus give token of the damage wrought upon them by the special toxine of the fever.

B. M.

Periscope.

EXCERPTS WILL BE FURNISHED AS FOLLOWS:

From the Swedish, Danish, Norwegian and Finnish:

F. H. PRITCHARD, Norwalk, Ohio.

From the French and German:

L. FISKE BRYSON, M.D., N. Y.

BELLE MACDONALD, M.D., N. Y.

PH. MEIROWITZ, New York.

R. K. MACALISTER, M.D., N. Y.

From the Italian and Spanish:

WILLIAM C. KRAUSS, M.D., Buffalo, N. Y.

From the Italian and French:

E. P. HURD, M.D., Newburyport, Mass.

From the English and American:

A. FREEMAN, M.D., New York.

The Editor will not accept as ORIGINAL ARTICLES and CLINICAL CASES those that have appeared elsewhere.

Authors are requested to make none but typographical corrections on the proof sent to them. The manuscript must represent the final form in which the article is to be printed.

PATHOLOGICAL.

Neurasthenia and Arthritism.—Dr. R. Vigou-roux, of Paris, has published an interesting work on the relation of these two diseased states. He regards them as very nearly related and having a common chemical base: increased acidity of the media with consequent diminution of metabolism and slowness of nutrition. This increased acidity is demonstrated by the augmented acidity of the urine, the flushing fluid of the organism. The urine of neurasthenics, of whatever the variety is distinguished by an increase in the amount of acid eliminated during the twenty-four hours, diminution of urea and other soluble products, relative increase of incompletely oxydized nitrogenous products, very frequent appearance in the urine of abnormal substances, as free lactic acid and toxic leucomaines. These are precisely the characteristics of the urine of arthritics. From this he deduces three therapeutic indications: diminution of the quantity of food, administration of the bicarbonate of soda and treatment by static electricity. It has been the general rule to overfeed these patients

which is an error. The first effect of restriction of diet is emaciation, but they soon regain their equilibrium and are happier, more inclined to work and stronger. Experience has confirmed this. The acidity of the urine requires the use of alcalies in slight doses, four to seven grams per diem of the bicarbonate. Static electricity is the vital stimulant par excellence. It is superior to massage or hydrotherapy. A certain number of neurasthenics have proven rebellious to this method, but then the use of the hot or cold douche will yield good results. Neurasthenia is generally accompanied by dyspepsia, with a diminution of hydrochloric acid in the stomach. There appears to be a certain correlation between the acidity of the stomach and that of the urine, when the one decreases the other increases. The bicarbonate of soda, in increasing the secretion of gastric juice and the amount of hydrochloric acid, relieves the dyspepsia and the urinary acidity at the same time.—(*Gazette des Hôpitaux*, No. 125, 1893).

F. H. P.

A Microscopical Study of the Living Nerve-Cell During Stimulation.—Hodge. (*American Therapist*, November, 1893.)

Hodge has been studying the nerve-cell continuously during the process of fatigue, and the chief result of the experiments so far is, that the nucleus shrinks when stimulated under these conditions more rapidly than when the ganglion remains in the animal's body. This decrease in size is rapid at first, then slower and more rapid again, as observed in a previous set of experiments: but the slowing up at no time amounts to a stand-still or to partial recovery. The controls shrink a very little, 3 to 8 per cent., as compared to 60 to 73.7 per cent. in the nuclei of stimulated ganglia. Granules and oil droplets have been seen to disappear from the cell-protoplasm during stimulation.

Stimulation has been continued as long as six days and nights, but active changes cease to be visible after the first five to six hours. With too severe stimulation the cells may show little or no change. The most definite results were obtained with the secondary of a Krüger coil (10305 u.) at from 10 to 13 cm. With the secondary coil at 0, no change in the cells was visible. Motile protozoa, vorticella and paramœcium, were almost instantly killed with this strength of current; whereas they were apparently uninjured when the secondary coil was removed to 10 cm.

J. C.

The Unilateral Visual Disturbances of Central Origin and Their Relation to Hysteria.—

In the *Neurologisches Centralblatt*, No. 17, 1893, Knies discusses the question as to whether a unilateral disturbance of vision can be produced by a lesion of the optic tracts posterior to the chiasm and primary optic ganglia. He thus describes the principal symptoms of this condition: 1. The diminution of visual acuity occurs in all degrees, yet complete blindness is comparatively rare. 2. In mild cases the pupillary reaction to light in the affected eye is not essentially interfered with. In complete blindness, however, it is usually absent, although it may be either diminished or preserved. 3. The concentric contraction of the visual field occurs in all possible degrees, but in no way corresponds with the degree of visual disturbance. The latter may be slight with considerable contraction of the field or *vice versa*. 4. The disturbance of color-sense is absolutely typical, and corresponds with the color perception of the periphery of the retina and fovea in the normal eye, under feeble illumination. The perimeter shows limitation of the color field, especially for red and green; less for yellow and blue. In some there is absolute color-blindness. He believes that in these cases the cerebral cause can only be due to defective innervation of the cerebral vessels. Should this be one-sided, unilateral sensory disturbance and paralysis may appear. W. M. L.

CLINICAL.

Insanity after Surgical Operations.—Dr. E. Régis, of Bordeaux (*Gazette Médicale de Bordeaux*, October 14, 1893), reports a case of insanity after operation for the removal of the ovaries and tubes. He thinks that the patient was predisposed by hereditary influences, but the principal determining causes were the traumatism, the anæsthesia and the biological modifications produced in the organism, after the removal of the important organs, the ovaries. Dr. L. G. Richelot, in *L'Union Médicale*, No. 49, 1893, in commenting on this case, claims removal of the uterus and ovaries does not bring about such a disturbing influence as the writer would have us think. He has seen three cases of insanity after surgical operations, from which he concludes that they were predisposed, that the mental disturbances were not the result of the intervention and that it is an error to incriminate cas-

tration any more than any other operation in the production of mental alienation. February 11, 1893, he removed by the vaginal route the two suppurating ovaries and tubes of a woman who was profoundly hysteric and who, for a long time, had suffered from mental disturbances. Her mental state was apparently so aggravated by the operation, that it was necessary to send her to an asylum, where she began to improve. Here, the insanity broke forth on a soil, long prepared, and was due to the surgical interference, but it was not caused by removal of the uterus and ovaries. He finds the proof of this in a similar case observed in March, 1891, where a hysteric girl with an exalted character and incoherent conduct was operated for a sero-hematic tumor of the right tube. He partially resected the tubal wall, but did not remove it entirely and left the two ovaries and the left tube intact. For ten days everything went well, when the patient was seized with hallucinations and she was committed to an asylum. She remained there eight months, became quiet and left the asylum in good health. Here was a case which nature was undoubtedly, the operation being the exciting cause in a soil already prepared. The uterus and ovaries were intact. He has seen after an abdominal hysterectomy for a fibroid, and which operation was followed by perfect health, a woman of forty-seven years attempt to cut her throat before her discharge from the hospital and that while in good health. Before the operation she was gloomy and melancholic. Two years before she had also tried to commit suicide. Such patients are hysterics, threatened with insanity and the nature of the operation has nothing to do with the outbreak.

F. H. P.

Attacks of Verbal Amnesia in a Hysterical Patient (*Journal des Sciences Médicales de Lille*, 24th February, 1893). Dr. A. Goix recalls a curious case of a girl, twenty-four years old, who had frequent attacks of the following trouble: She was unable to understand the meaning of either the written or printed text, which she was perfectly able to read aloud. She had neither motor aphasia, agraphia nor verbal deafness. She could write easily whatever was dictated to her, without, however, understanding the meaning of the words she had just employed. These curious attacks occurred in the morning and were accompanied by redness of the face and a cyanotic condition of the hands. Hemianopsia was absent; a concentric narrowing of the visual field present.

The author, in discussing this case, suggests the probability of there existing two forms of verbal blindness; in the one there is loss of memory of the form, and in the other of the signification of the written words. E.N.B.

Atavism, Involving Three Generations.—

Deane (*Pacific Med. Jour.*, January, 1894). First generation.—Husband of good heritage, mentally above the average, alcoholic, syphilitic, died a paralytic. Wife, of good family also, petite, negative disposition, moral qualities not highly developed, refined, still alive. Second generation.—Children of above, eight in number, four boys and four girls. First born, now forty years old, a good-for-nothing drunkard, mentally and physically below normal. Second, boy, lost at sea. Third, boy, mentally and physically below normal; died of phthisis. Fourth, boy, phthisical, homicide, married beneath him socially, has two children, eldest has marked dolicocephalic head. Altogether he is a bad citizen. Of the girls, the first lapsed from virtue at an early age, and later developed nymphomania. The second girl married early and had three children. The first an idiot, the other two mentally and physically below normal. In later years the mother developed exophthalmic goitre. The third girl died in infancy. The fourth girl is the superior of any of the other children, and shows no sign of physical or physical depravity. An aunt of these children was insane.

J. C.

THERAPEUTICAL.

On Cerebral Tumors and their Surgical Treatment.—At a meeting of the Association of Alienists of Lower Saxony and Westphalia, held in Hanover, May 11, 1893, Dr. Bruns reported the following cases:

I.—Female, 31 years of age. General symptoms: vomiting, headache, choked disks. Focal symptoms: subcortical alexia (Wernicke) and right homonymous hemianopsia. Comprehension of words preserved; spontaneous speech, with slight paraphasia and scarcity of nouns. Repetition of words good. Objects held before her are recognized, but not named. When the name is told her she repeats it correctly, but forgets it at once. The word is not forthcoming, even by the aid of examination with her hand. Inability to read words; letters seem the same as objects, being recognized but not named.

Writing, spontaneous and possible from dictation, but quite bad. Copying impossible.

Slight paresis of right side with occasional patellar and ankle clonus. Frequent attacks of transient total blindness. Dullness on percussion over apex of right lung.

Diagnosis: Tumor in left occipital lobe, probably tubercular. Operation, April 5, 1892. No tumor was found either on the convexity or on the inner side of the left occipital lobe, nor in the subjacent parts of the temporo-parietal lobe. Persistent flow of cerebro-spinal fluid. Retrogression of all general symptoms, such as vomiting and headache, and especially complete subsidence of the choked disks.

Local symptoms unchanged. During June and July, condition good. In August, gradually getting worse. Ultimately, word-deafness and distinct right hemiplegia. Death, August 27th.

Gliosarcoma with extreme vascularity in white matter of right occipital lobes extending to the pulvinar. Similar tumors were situated in the cortex at the extreme posterior end of the first left temporal convolution and in the left gyrus hippocampi.

The tumor in the temporal convolution was not demonstrable at the time of the operation.

This is the third case of subcortical alexia with autopsy (v. Monakow, Dejerine). All confirm Wernicke's assumption as to the location of the lesion.

II.—Female, 30 years of age. Subject to epileptic attacks since 1879. During the last few years the seizures have been less frequent, but severe attacks of migraine have taken their place. In April, 1892, a definite diagnosis of cerebral tumor was made,—optic neuritis, rapid increase of headache and bulbar symptoms. No localizing symptoms. By July all symptoms had increased without local manifestations. Serious involvement of respiratory and cardiac action. Operation July 27th. Small trephine opening over left parietal lobe. Marked hernia cerebri. No loss of cerebro-spinal fluid. Headache disappeared. Choked disks remained and gradual blindness developed. Paraphasia without word-deafness; reading preserved: writing seriously impaired. No hemianopsia. These disturbances were very likely produced by the trephining.

General condition good until August 27th.

From about the 7th of September, suddenly and with-

out recognizable cause, there was a discharge of cerebral fluid. The prolapsed portion of the brain receded and the paraphasic symptoms disappeared. Agraphia. The optic neuritis also subsided, but she was nearly blind.

Toward the end of September, increase of bulbar symptoms. Death from pneumonia (Schluck-pneumonie) October 5th. Large sarcoma in right frontal lobe growing toward the base and making direct pressure on the chiasm, pons medulla, and cerebellum markedly compressed to the size of that of a five-year-old child. Tumor well defined in two parts, one being old and calcified, and the other of recent development and soft.

III.—Female, 50 years of age. Most pronounced general symptoms of tumor. Attacks of severe headache with vomiting, delirium and syncope. Optic neuritis. Aphasia of the same character as that produced by the operation in Case II. Word comprehension preserved, but only interfered with at the height of the paroxysm of headache. Marked paraphasia. Normal repetition of words. Reading normal. Agraphia. Objects held before her are not always named correctly. No hemianopsia. Transitory pain and slight weakness on the entire right side. Exquisite circumscribed pain on percussion of the skull, over the posterior portion of the right temporal lobe. Diagnosis: Tumor in the posterior portion of the right temporal lobe, probably involving the second temporal convolution. Trephining at this point on September 5th. A tumor was found with its upper border directly in the trephine opening, the lower border being about 2 ctm. from the fissure of Sylvius. Posteriorly, it did not extend beyond the temporal lobe. Its extent could not be distinctly defined. Cheesy portions were removed, which were supposed to be tubercular. Microscopical examination showed it to be sarcoma with caseation.

Despite the fact that there was no loss of cerebrospinal fluid, marked decrease in the intracranial pressure took place, the choked disks receded, the headache subsided and she was able to sleep without medicine.

The aphasic symptoms were not improved. About the middle of November, 1892, she got worse so rapidly that another operation was out of the question. Gradually, right hemiplegia and hemianopsia. After December in condition of hebetude. Death on February 7, 1893. Autopsy. The large tumor which had grown since the operation, now extended upward above the

Sylvian fissure, and involved the largest part, especially of the posterior portion of the base of the left temporal lobe. The cortex underneath was softened. The tumor in its growth had not coalesced with the brain.

Bruns then gives a statistical review of the tumor cases observed by him, with special reference to the question of operation.

Among 2,200 patients with mental or nervous disease, the diagnosis of cerebral tumor was made in thirty-two, or about $1\frac{1}{2}\%$. Sixteen of these were operated upon. One was incorrectly diagnosed. In four, tumor was diagnosed without localization; three of these being multiple tumors.

In all of the remaining eleven cases operated upon, a correct localization was made; four were situated in the frontal lobe (one hæmatoma of the dura, one sarcoma, one glioma), and the fourth case being that published by Hitzig, who was operated upon by Bramann and is still living (*Berlin Klin. Woch.*, 1892, 715). One in the left temporal lobe. One in the left occipital lobe. Three in the pons (one tubercular, one gumma, one glioma). Two in the cerebellum (one tubercular, one sarcoma). Of the sixteen not operated upon, several of whom are still living, four were without definite localization. In six, he thought there were some symptoms favoring localization, but was unwilling to give a positive opinion. In one case, as subsequent observation showed, there was no tumor, but a multiple sclerosis, with pronounced optic neuritis at the first examination. In 68.75%, a correct local diagnosis was made; in 25% a correct general diagnosis. The most important factor relating to operative interference is correct localization. Of the eleven cases with accurate diagnosis as to the seat of the lesion, five proved at once unsatisfactory for operation on account of the location of the tumor (three in the pons and two in the cerebellum). So far as he could learn all cases of cerebellar tumor had died as the immediate result of the operation. The diagnosis as to the character of the growth is almost equal in importance to the localization. The possibility of its removal depends largely as to whether the tumor is sharply limited, or diffused through the brain substance. We have no positive signs for determining this. It is also desirable to know something as to its size. This, however, seems to be impossible, yet the case of Hitzig-Bramann teaches that very large tumors can be successfully removed. In the majority of cases we are unable

to satisfactorily determine the presence of multiple growths. Finally, it is impossible to say whether the tumor is situated in the white substance or in the cortex.

According to his views, the justification for operating for brain tumor must be conceded, and he believes that the operation will not be discarded. Even after a partial extirpation of the growth there is frequently improvement in the general symptoms.

This is brought about by the diminution of the intracranial pressure; first, by a partial removal of the tumor; second, as the tumor is situated directly at the trephine opening and grows into it, and third, through the loss of cerebro-spinal fluid.—(Neurolog. Centrbl., No. 11, 1893).

W. M. L.

Contribution to the Study of the Therapeutic Action of the Liquid Extract of Sheep's Brains in Adults and Infants.—Dr. Moncorvo. (*Bulletin Général de Thérapeutique*, November 15, 1893.)

The subjects experimented upon comprise two groups: first, children between the ages of two and ten years, of which four were boys and nine were girls; second, adults between the ages of eighteen and fifty-three years, of which two were men and three were women. The first group received in all 187 injections of one gramme of the extract. The second group received 196 injections. The point chosen for the injections was, in general, the interscapular region near the margin of the scapula. With antiseptic precautions, not the slightest local reaction was ever observed.

In the first group there were as follows:

Tuberculous coxalgia, three cases (one girl and two boys); hereditary syphilis and paraplegia, one case (girl); hereditary syphilis and bronchial adenopathy, two cases (a boy and a girl); paraplegia consecutive to scarlatina, one case (girl); cerebral syphilitic sclerosis, one case (boy); pulmonary tuberculosis, two cases (girls); hysteria, one case (girl); hysteria and chorea, two cases (girls).

In the second group were the following:

Reichman's disease, consecutive cachexia, one case (man); tabes dorsalis, one case (man); hysteria, two cases (women); neurasthenia and anæmia, one case (woman).

The tonic action of the extract in these cases was very manifest. The muscular forces were improved, the cerebral faculties reinforced, the appetite bettered, insomnia

gave way to calm sleep, the integuments assumed more or less quickly their normal hue, and the body weight was augmented almost without exception, in some cases even to the point of *embonpoint*.

The injections, which were administered at intervals, varying from two days to three weeks, were all well-borne, occasioning sometimes a general excitation which never lasted more than a day.

The author details the histories of the seventeen cases treated with the extract, which in his hands exhibited such good effect upon the central nervous system, particularly of infants. He regards it as a valuable addition to the infantile therapeutic resources of medicine. P. M.

Piperazine in Diabetes Mellitus.—Although Piperazine has been chiefly utilized as a solvent for uric acid in the treatment of gout, renal lithiasis and the uric acid diathesis in general, some evidence has been recently adduced showing its value in diabetes mellitus. Hildebrandt's experiments are very interesting in this respect. He set up an artificial diabetes in dogs by administration of phloridyin, and then gave Piperazine Bayer with the result of preventing the excretion of sugar. If phloridyin and Piperazine were simultaneously administered no signs of diabetes or impairment of the health of the animals was observed. Encouraged by these results, Hildebrandt resorted to the use of the remedy in a case of marked saccharine diabetes, giving from fifteen to twenty-five grains daily divided in three doses in aqueous solution. Under its employment, which was kept up for fourteen days, the amount of sugar in the urine was reduced from eight to three per cent., while the patient's general condition was also much improved. In a case treated by Dr. Gruber, in which other remedies had been previously employed without success, Piperazine Bayer proved very serviceable. It was administered in fifteen grain doses daily dissolved in soda water, and its administration was continued for five weeks. During this time the patient's condition was not only materially improved, but the excretion of sugar was considerably reduced. In view of the lack of efficient remedies in diabetes mellitus, further trials of Piperazine are greatly to be desired. Now that the Farbenfabriken vorm. Friedr. Bayer & Co., of Elberfeld, have by a new process of manufacture greatly diminished the cost of the remedy, this obstacle to its employment in doses sufficiently large to exert medicinal effects no longer is encountered.

Society Reports.

NEW YORK NEUROLOGICAL SOCIETY.

*Stated Meeting, held at the New York Academy of Medicine,
Tuesday evening, April 3d, 1894.*

Dr. M. ALLEN STARR, President, in the chair.

A CASE OF AMYOTROPHIC LATERAL SCLEROSIS.

Presented by Dr. CHARLES HENRY BROWN.—The patient was a boy, aged fifteen, who two and one-half years ago began to notice first a loss of proper speech, difficulty in whistling and in moving the tongue. These symptoms were rapidly followed by difficulty in deglutition, closing of the eyes, deafness and inability to move the facial muscles. After a few weeks he was unable to use the fingers freely in buttoning and unbuttoning his clothing. At present the patient is extremely emaciated. There is paralysis of the seventh nerve on both sides. Trophic degeneration in the muscles of the face and neck. The condition known as "Taper mouth" is present. The tongue is very much atrophied. The larynx is distorted. He presents all the symptoms of glossolabio-laryngeal paralysis and nuclear implication of the bulb. There is atrophy of numerous muscles in the upper extremity, and of a few in the lower extremity. There are general fine and coarse fibrillary twitchings all over the body; exaggeration of superficial and deep reflexes and slight tonic and spastic action in the movement of many muscles.

A CASE OF PROGRESSIVE MUSCULAR DYSTROPHY.

Presented by Dr. ALFRED WIENER.—The patient was a male, aged twenty years. He was in good health up to May, 1893, when he began to suffer considerable pain in the region of the liver and spleen. This was most severe

on walking. Soon afterwards he began to experience difficulty in going up-stairs, and he noticed that he was growing very much thinner. His weakness was at first confined to the muscles around the thigh; from here it spread up along the back and involved the muscles of the neck and shoulders. There was no vesical or rectal trouble. There is no history of alcoholism or syphilis. Family history negative.

The patient's present condition is as follows: No mental symptoms. Voice and speech appear to be normal. He is very much emaciated, especially in the neighborhood of the shoulders, back and thighs. He assumes the position of one with a marked lordosis, and walks with a waddling gait. On lying down it is impossible for him to turn over or lift his head from the pillow. His muscles are soft and flabby to the touch. There are no contractures nor fibrillary twitchings; no vasomotor or trophic disturbance. The thoracic and abdominal organs appear to be in perfect condition. There is present no pseudo-hypertrophy in any of the lower muscles, nor does the patient give a history of any having existed. The deep reflexes are all much diminished. The nerves are not painful to pressure, and there is no spinal tenderness. The lordosis is due to the paresis of the muscles of the dorsal and lumbar portions of the back.

Dr. JOSEPH COLLINS said that the case presented by Dr. Brown was very similar to one under his observation at the present time, excepting that his patient was a man thirty-four years old, in whom the symptoms came on rapidly about six months ago. It is very uncommon to see the disease at such an early age as that of Dr. Brown's patient, but he thought that cases showing the occurrence of the disease at even a more tender age have been recorded. The involvement of the fifth nerve that Dr. Brown's patient seemed to present he had never before heard of. The patient presented by Dr. Wiener seemed to be a typical one of muscular dystrophy, and one whose pathognomonic symptoms were in marked contrast to the case of amyotrophic lateral sclerosis shown by Dr. Brown.

The PRESIDENT said that the contrast between the cases shown by Drs. Brown and Wiener was interesting; one presented the typical features of amyotrophic lateral sclerosis, namely, atrophy, fibrillary twitchings, increased reflexes and bulbar invasion; the other showed a pure

dystrophy, without twitching and without change of reflexes.

Dr. E. D. FISHER said the cases presented by Drs. Brown and Wiener represent two distinct classes of diseases. The first shows apparently a rare condition in which an inflammation has affected the bulb and later the anterior horns in the cervical region, with involvement of the lateral columns. In other words, we have amyotrophic lateral sclerosis with bulbar symptoms. The usual and not uncommon order of sequence is that of involvement of the cord, with extension later to the medulla. Dr. Fisher said a patient recently under his observation, aged twenty, presented bulbar symptoms of rather acute onset; death resulted suddenly, probably from some involvement of the respiratory centre in the medulla. The autopsy revealed softening in the region of the glosso-pharyngeal and pneumogastric nuclei. That case would probably have presented a similar clinical history, if the patient had lived.

Dr. SACHS said he agreed with the diagnosis of amyotrophic lateral sclerosis in Dr. Brown's case. Dr. Wiener's case was undoubtedly one of progressive muscular dystrophy.

Dr. WILLIAM M. LESZYNSKY called attention to the fact that in Dr. Wiener's case the upper part of the trapezius muscle was atrophied, while the lower part escaped. This partial atrophy, he said, usually occurs in progressive muscular atrophy of spinal origin.

Dr. SACHS said that the partial atrophy of muscles may also occur in spinal dystrophies.

The PRESIDENT said that in three cases of amyotrophic lateral sclerosis coming under his observation, the bulbar symptoms were very prominent.

Dr. SACHS expressed the opinion that the bulbar symptoms in amyotrophic lateral sclerosis were due to a natural extension of the disease upwards. He inquired whether there was involvement of the eye in these cases.

Dr. BROWN said there may be slight ophthalmoplegia.

Dr. L. C. GRAY said he has seen the eye involved in one case.

Dr. BROWN, in closing the discussion, said he presented his case as a typical one of amyotrophic lateral sclerosis, but rare in the fact that it had commenced in the bulb and extended downwards. He thought this type of nuclear trophic and motor disorder was somewhat acute in its manifestations, and rapidly ran its

course. He considered that his case was in *statu quo*, and would progress no further so far as degeneration of muscles was concerned. The boy presented a typical picture of a glosso-labio-laryngeal paralysis, which is an extremely rare condition in childhood. The fibrillary twichings and slight spastic actions and increase of the reflexes undoubtedly contribute to the picture of a lateral sclerosis.

The PRESIDENT exhibited a diagram showing the areas of anæsthesia in the arms as the result of lesions involving different segments of the cervical and dorsal portions of the cord. This diagram, he said, was the result of a careful study of a large number of cases—either coming under his own observation, or reported by others—in which the spinal cord was involved. The result seems to show that for each segment of the cord there is an area of the skin which is anæsthetic when that segment becomes involved.

A CRITICAL REVIEW OF THE VARIOUS THEORIES OF URÆMIA, BASED UPON ORIGINAL EXPERIMENTAL OBSERVATIONS.

Dr. C. A. HERTER read a paper on this subject. He began by stating that few subjects of a medical nature have received more attention at the hand of clinicians and investigators, than that of uræmia. Yet at the present time there is an uncertainty as to the nature of the uræmic state that is discouraging, both to the student of pathology and the practitioner who seeks to understand the conditions he is called upon to treat.

Dr. Herter first gave a brief historical sketch of the growth of opinion regarding the nature of uræmia, and then reviewed in detail the various theories that have been advanced. The first one taken up was that known as the mechanical theory of uræmia, which has its chief basis in the clinical and post-mortem studies of Traube, who was impressed with the facts that in many cases of Bright's, the blood is impoverished in its corpuscular and proteid elements, the left ventricle is hypertrophied, and the arterial tension is greatly increased. The hydræmia combined with high arterial pressure was supposed to account for the cerebral œdema found at autopsy. The uræmic symptoms, Traube referred not to cerebral

œdema, but to the anæmia of the brain, resulting from the pressure exerted by this œdema. There are objections to this theory. In the first place, œdema of the brain is present in only a small proportion of cases where there have been unequivocal symptoms of uræmia during life. There have been many cases of kidney disease with no hydræmia, no cardiac hypertrophy and no increase of arterial tension; yet even when these latter conditions are present, there is usually no œdema of the brain. In the second place, œdema of the brain is found in conditions where Bright's is absent, and there are no symptoms of uræmia. Then again, drugs which produce convulsions may produce cerebral œdema, and it is likely that the œdema of the brain seen in uræmics is often the consequence rather than the cause of the convulsions. A further objection to the mechanical theory is that lowering of the arterial tension, where it is high, does not necessarily relieve the uræmic symptoms. The dyspnœa of Bright's is often thus relieved, but usually not the convulsions. Bleeding frequently stops the latter, but it checks them often also where there is no excess of tension. The effects of bleeding cannot be used as an argument in favor of Traube's theory, because it may be claimed that the bleeding relieves the circulation of poisonous substances.

The carbonate of ammonium theory. This was advanced by Frerichs, and is based upon the following propositions:

1. It is a well-known property of urea to be readily transformed under favorable circumstances into ammonium carbonate.
2. Carbonate of ammonium can always be detected by chemical means in the blood of uræmic patients.
3. The injection of ammonium carbonate into the blood of animals gives rise to the symptomatic group of uræmia.

The fate of Frerichs' theory hangs on his second proposition, namely, that the blood of uræmics always contains ammonium carbonate. From numerous experiments made by Gobee, Oppler, Zalewsky, and others, including the author, the following conclusions may be drawn: 1. That no ammonium carbonate, or only a small amount is found in the blood of uræmic persons. 2. That amounts of ammonium carbonate far smaller than the quantity required to kill are readily detected. 3. That urea injected into the blood of dogs is not converted into

ammonium carbonate. We may, therefore, state that Frerichs' second proposition is without a substantial foundation. It has been stated that the ammoniacal breath occasionally met with in uræmic patients is evidence of ammonia in the blood. It is more liable to be found in uræmics with gastro-intestinal symptoms, and the ammonia probably comes not from the blood, but from the gastro-intestinal tract.

The theory of Trietz differs from that of Frerichs mainly, in that it supposes the conversion of urea into ammonium carbonate to take place in the intestine instead of the blood. He holds that it is by the entrance of ammonium carbonate into the blood that the uræmic state arises, and objections already made to the proposition of Frerichs, that uræmic blood contains ammonium carbonate, apply here with equal force.

The potassium theory of Felz and Ritter is based upon the idea that the potassium of the blood-serum, which is normally present in very small amount, might accumulate under pathological conditions and cause death, the potassium salt being rapidly fatal in animals when injected into the veins in even inconsiderable quantity. The experimental and chemical evidence of various observers is strongly opposed to this theory, and it may be unhesitatingly abandoned.

The theory of Brown-Sequard. According to this writer, the kidney elaborates an internal secretion which is essential to health, and the suppression of which is responsible in a large degree for the phenomena of uræmia, while the accumulation of toxic substances in the blood is thought to have little or no influence in causing uræmic symptoms. The following are the chief facts upon which this hypothesis rests: 1. It is claimed that the injection of kidney extract into the circulation of a nephrectomized dog causes the temporary disappearance of uræmic symptoms. 2. It is held that the well-authenticated cases of survival of patients with anuria for a week or more without any signs of uræmia, especially in cases of mechanical obstruction of the ureters, is evidence that it is owing to the internal secretion of the kidney that this inhibition of uræmic symptoms takes place. All the facts advanced in support of the first proposition, Dr. Herter said, are equivocal, and those advanced to support the internal secretion theory are equally weak.

The theory of extractives and toxins. The extrac-

tive theory of uræmia refers the toxæmic symptoms to the accumulation in the blood of the extractives usually found in urine; among these may be mentioned xanthine, uric acid, creatinine, etc. In order to show that a substance plays a part in the production of uræmic symptoms, it is necessary to prove that this substance is present in the blood in uræmia, or is present in excessive amount, and that the substance is toxic in the higher mammals. The evidence is not fully satisfactory regarding either of these points. The observations that have been made hardly establish the fact that an accumulation of the extractives is a feature of all, or many cases of uræmia. The evidence is even less strong in regard to particular members of the extractive group.

Regarding the view which attributes the uræmic phenomena to the action of toxins, the poisonous basic products of bacterial activity, there is little to be said, for the evidence on which it is built is scanty and conflicting. None of the toxic ptomaines that have been suspected in this connection have been found in the blood of uræmics.

The urea theory of uræmia. The evidence relating to urea as a factor in uræmia may be grouped in answer to the following queries: 1. Does urea occur in excess in the blood of uræmic patients? 2. Is urea toxic, and if so, to what extent does it explain the symptoms of uræmia? As regards the first question, we have a sufficiently large accumulation of observations made by competent investigators to enable us to reach a definite decision. In the blood of Bright's disease, the quantity of urea is largely increased beyond that found in the normal blood, and its presence is readily detected even by imperfect chemical methods. When we come to the second question, we find that the effects which favor and those which oppose the idea that urea is toxic seem to be about evenly balanced. Dr. Herter then reviewed the observations that have been made bearing on this question, and detailed a number of experiments made by himself, which prove that pure urea injected into the blood of the dog and monkey in large amount is in the highest degree toxic. The autopsies in these cases disclosed marked congestion of the gastro-intestinal tract. To what extent and under what conditions urea is a factor in uræmia, the author said it was not possible for him to state at the present time. Facts at our command strongly favor the view that the gastro-intestinal symp-

toms of uræmia are due to urea. There is no doubt that we at present group together under the term "uræmia" conditions which are totally distinct as regards pathology. The evidence is very strong, though not quite conclusive, that one group of symptoms depends largely on the accumulation of urea, and, perhaps, extractives in the blood, while another set of symptoms bears the stamp of an infective process, operating in the presence of renal insufficiency. Observations may show that even further subdivisions of cases are necessitated by pathological considerations.

It is upon the following facts that the author based the view that urea plays an important part in causing the gastro-intestinal symptoms of uræmia:

1. The presence of urea in excess in the blood in such cases.
2. The property which pure urea possesses of causing such symptoms when injected in the circulation.
3. The occurrence in Bright's of congestion of the gastro-intestinal tract, and the occurrence of a similar congestion in animals, which is positively due to the injection of urea into the blood.
4. The fact that urea is found in the dejecta of patients with gastro-intestinal uræmia.
5. The absence in many of these cases of any elevation of temperature, or other evidence of an acute toxæmia.
6. The fact that the urine in these cases, even at the time of the crisis, is no more toxic than normal urine, which is in sharp contrast to the very toxic urines found in acute febrile uræmias of cerebral type.

Dr. W. H. THOMSON said the subject of uræmia has always been and still remains a very mixed one in his mind. Dr. Herter's paper is certainly a very valuable contribution to the subject. The cases of uræmia to which Dr. Herter principally confined himself—those in which the characteristic symptoms are vomiting and purging—form comparatively a small minority of those that come under our observation. In many cases there are no gastro-intestinal symptoms whatever. Theoretically, Dr. Thomson said, he still felt strongly inclined to the view that toxins play a very important part in the production of the purely nervous symptoms of uræmia. Regarding the experiments performed by Dr. Herter, in order to prove the toxic effects of urea, Dr. Thomson inquired whether the injection into the blood of sodium

chloride, or other similar substances, might not give rise to derangements of the system to some degree resembling those produced by the repeated and rapid introduction of increasing quantities of pure urea.

DR. WILLIAM H. FLINT said he was fully in accord with the statements made by Dr. Herter in so far as they went to prove the etiology of certain forms of uræmia.

Dr. J. S. ELY referred to the intestinal lesions that he had observed in performing autopsies on persons who died of nephritis. It is often difficult to state positively whether the congestion was present before death or produced by putrefactive changes. Unless the autopsy is made very soon after death it would be hazardous to argue from the redder appearance of the mucous membrane that the congestion was the result of the disease.

Dr. B. SACHS expressed the hope that the critics of the future would deal more leniently with Dr. Herter's theory than he had dealt with the theories reviewed in his paper, and they would expend the same amount of thought and labor to prove their assertions. He did not think that anyone should attempt to establish a single theory to explain such a complex of symptoms as we have in uræmia. Very much the same symptoms occur under other conditions, and we are perfectly willing to recognize that different morbid processes give rise to them.

Dr. HERTER then closed the discussion. He stated that in his paper he did not advocate any one theory to explain all the phenomena of uræmia. What he did advocate was that there is a certain class of symptoms, a limited class, namely, the gastro-intestinal symptoms, which are met with in certain cases of uræmia, and which are due, in all probability, to urea. The proof of this is not absolutely satisfactory, but he did not see how the proofs adduced by his experiments could be interpreted in any other light. In reply to Dr. Thomson's question, Dr. Herter said that large quantities of sodium chloride can be injected into the blood without producing results comparable to those produced by the introduction of urea. As regards the cerebral symptoms of uræmia, he does not know what they are due to, and in his paper he made no attempt to throw any light on those cases. The autopsies on the animals which were killed by the introduction of urea were performed immediately after death, and the intestinal congestion was very marked.

ELECTION OF OFFICERS.

The following officers were elected for the ensuing year: President, Dr. E. D. Fisher; Vice-President, Dr. C. A. Herter; 2d Vice-President, Dr. Wm. M. Leszynsky; Recording Secretary, Dr. Frederick Peterson; Corresponding Secretary, Dr. Mary Putnam-Jacobi; Treasurer, Dr. G. M. Hammond.

PHILADELPHIA NEUROLOGICAL SOCIETY.

Stated Meeting, March 26th, 1894.

Vice-president, Dr. JAMES HENDRIE LLOYD, in the chair.

Dr. M. ALLEN STARR, of New York, read a paper on

LOCAL ANÆSTHESIA AND OTHER SYMPTOMS
PRODUCED BY LESIONS OF THE CERVICAL
CORD.

ABSTRACT.

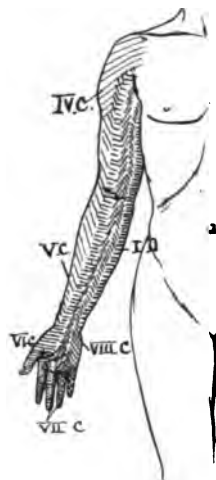
AFTER alluding to the relations between the various segments of the cervical cord and the spines and bodies of the cervical vertebræ, and showing that the relation is a variable one, the author proceeded to cite a number of cases of limited lesion of the cervical cord, traumatic, hemorrhagic, inflammatory and due to tumor, in which the local symptoms had been exactly studied, and in which the anæsthesia present had been carefully laid down on diagrams.

He then drew the following conclusions:

CONCLUSIONS.

First. As to the distribution of anæsthesia in lesions of the cervical enlargement of the spinal cord. By combining the diagrams already given with numerous other diagrams published by Thorburn and others, and comparing the results with descriptions of numerous cases

collected by Mills and Lloyd, by Chipault, White and other surgeons, it is possible to produce a schematic dia-



gram, such as is here presented, demonstrating the areas of skin upon the arm which are related to the various segments of the cord between the second dorsal and the fourth cervical.

1. The first area is a narrow one upon the inner side of the arm and forearm, extending down to the wrist, but not involving the hand. This includes a small zone both upon the dorsal and palmar surfaces of the arm and forearm, but is quite narrow. While it is probable that the upper portion of this area in the axilla is related to the second dorsal nerve, as Head maintains, I can find no exact lesion of the cord limited to the second dorsal segment and associated with such a limited anæsthesia to prove this statement.

There is a case reported by Charcot,¹ in which a bullet wound involved the first dorsal nerve only, and in which a small area in the axilla remained sensitive; the other parts included in area number one being anæsthetic, but as no examination of the cord was made in this case the conclusion drawn from it is of no more weight than that which might be drawn from a knowledge of the anatomy of the intercostal-humeral nerve. Area number one corresponds to the first dorsal segment.

2. The second area includes the ulnar side of the

¹ Arch. de Neurol., 1891.

hand, both palmar and dorsal surfaces, the little finger and one-half of the ring finger. It also includes a narrow strip of the skin upon the dorsal and palmar surfaces of the forearm and arm up to the axilla. This is proven by the fact that when lesions invade the eighth cervical segment of the cord the zone of anæsthesia upon the front and back of the arm and forearm is decidedly wider than when the first area alone is anæsthetic. It affords also a confirmation of the statements of Sherrington that there are no isolated patches of skin entirely separated from the body related to the sensory nerves. The second zone corresponds to the eighth cervical segment.

3. The third zone extends to the middle line of the middle finger, includes the middle of the palm and back of the hand and runs up the centre of the forearm and arm on both surfaces. This corresponds to the seventh cervical segment.

4. The fourth zone includes the remaining skin of the fingers and thumb and of the hand as high as the wrist and a narrow strip of skin up the forearm and arm on both surfaces to the axilla. This corresponds to the sixth cervical segment.

5. The fifth zone includes the skin upon the outer side of the forearm and arm on both surfaces as high as the insertion of the deltoid muscle. This corresponds to the fifth cervical segment.

6. The facts that in lesions as high as the fifth segment there occasionally occurs hyperæsthesia over the top of the shoulder and in the region of the supraclavicular nerves, and that in pachymeningitis the pain is felt here, leads to the belief that the fourth segment is in relation with this area. But in as much as lesions of the fourth segment of a destructive nature are uniformly fatal no case of anæsthesia can be found to determine the exact extent of skin which corresponds respectively to the fourth and third cervical segments.

It is hardly necessary to point out the differences between the areas of anæsthesia produced by cord lesions and those produced by lesions of individual nerve trunks, although a glance at the diagram and its comparison with Flower's well known plates shows this immediately. It is also evident that a study of the anæsthesia occurring in spinal cord lesions and that occurring in multiple neuritis, affords an important point of diagnosis between these two conditions. It will be remembered that in multiple neuritis, the anæsthesia affects all the fingers

simultaneously, then the entire hand and then extends up the arm involving all surfaces on both sides in an area which has been aptly described as the "glove area," corresponding, as it does, to the region of skin covered by a glove of various lengths. I have never seen a case of multiple neuritis in which the anæsthesia extended as high as into the axilla. It is usually limited by a line drawn around the elbow or a line in the middle of the arm.

Lastly, the area of anæsthesia occurring in hysterical conditions is different from that described as occurring in spinal lesions, for there is never the patch of normal sensitive skin over the top of the shoulder and down the outer side of the arm to the insertion of the deltoid, such as we have seen in all the cases of spinal lesions, and in hysterical anæsthesia it is well known that the neck is usually anæsthetic.

Clinical observers in the future should attempt by the aid of diagrams to define a little more exactly the region of the anæsthesia in the arm, and should also seek for a narrow zone of hyperæsthesia bordering the normal skin and between it and the insensitive region, which zone will necessarily be very narrow in the upper extremity. Herter is the only one who has described such a zone. In discussing the anæsthesia from lumbar lesions, I was able to show that such a zone of hyperæsthesia often existed of a most irregular shape in unexpected areas, which were easily explained when the exact region of the skin, corresponding to the segment just above the lesion was determined.

Secondly. Lesions in the lower cervical region of the cord produce a number of symptoms due to a lesion of the cilio-spinal centre which have been frequently overlooked by observers. The situation of this centre is in the first dorsal segment of the cord, and according to Klumpe² the symptoms are only produced by a lesion of the cord or of its nerve roots not by a lesion of the nerves after they have issued from the spinal canal and formed the brachial plexus.

The symptoms alluded to are myosis with sluggish reaction of the pupil both to light and in accommodation, a decided narrowing of the palpebral fissure so that the eye-ball looks smaller than normal and a slight retraction of the eye-ball. There is no flattening of the face, nor are there any vasomotor symptoms such as may be

² Klumpe. Paralysis Radiculaires. *Rev. de Med.*, 1885, Nos. 7 and 9.

produced by a lesion in the course of the cervical sympathetic nerve. These symptoms are very easily overlooked if they are present upon both sides. But when the lesion has been unilateral they have been noted by a number of observers.

Kraus³ has described them in a number of cases of traumatic injury of the cervical cord due to fracture of the seventh cervical vertebra.

In a case of unilateral compression of the cord by a fracture of the seventh vertebra which I recently saw with Dr. Bryant at St. Vincent's Hospital, these symptoms were very noticeable upon the left side. I believe with Kraus that a more careful observation will reveal the existence of these symptoms on both sides in all cases of a crush of the lower part of the cervical and upper dorsal region of the spinal cord.

Thirdly. A careful study of the cases here collected furnishes additional evidence in regard to the localization of the motor functions of the spinal cord. They serve to confirm quite fully statements made by me in 1884 and again in 1888 in regard to the representation of the various muscles of the upper extremities in different segments of the cervical region.

In the articles alluded to, it will be found that every muscle is assigned a representation in more than one segment of the cord, and this fact has been accepted by Mills and by Kaiser. It is well known that the groups of cells in the anterior horns of the cord have a considerable extent vertically, so that some groups are long enough to reach through two, or even three segments, and but very few groups can be said to be situated in one segment only. But in as much as these groups of cells govern individual muscles, as we must believe in view of the facts known regarding anterior poliomyelitis, it is evidently a mistake to assign the representation of single muscles to single segments. I cannot, therefore, adopt the arrangement proposed by Thorburn and copied by Collins in which individual muscles are assigned to single segments.

If cases such as these here collected are carefully studied it will be found that a lesion limited to one segment rarely paralyzes any muscle completely. If, however, the lesion extends through two or more segments the paralysis is complete. Or if a lesion is a progressive one extending either upward or downward it will be

³ Kraus. *Zeitschrift für Klin. Med.*, XVIII.

found that the muscles will be paralyzed in greater and greater degree as the lesion extends. These facts are only to be explained upon the theory that individual muscles have a considerable vertical representation in the cord, and this, as we have already seen, corresponds to the anatomy of the groups of cells. The table already published, therefore, presents the facts in an accurate manner.

I am quite prepared to admit that the vertical extent of individual groups of cells may vary in different individuals, thus in two cases carefully studied by Beevor and by Johnson the lesion though involving the sixth cervical segment caused no paralysis of the biceps, while on the other hand, in one of Herter's cases the biceps were decidedly involved by a lesion of the seventh segment. It is, therefore, probable that the representations of muscles are not always the same in different cords. The table, however, may be considered as fairly accurate because it combines a large number of facts derived from the study of very many cases. It is, perhaps, more accurate than the earlier tables. In recent cases care has been taken to examine the paralyzed muscles electrically and the existence of the reaction of the degeneration is certainly a positive proof that the group of cells governing the muscle has been destroyed.

In conclusion, I think it may be stated that the sensory and motor functions of the cervical region are now as well determined as those of the lumbo sacral region of the spinal cord.

Dr. LLOYD read a paper on

TRAUMATIC AFFECTIONS OF THE CERVICAL REGION OF THE SPINAL CORD SIMULAT- ING SYRINGOMYELIA.

DISCUSSION.

Dr. WILLIAM OSLER, of Baltimore.—It is extremely interesting to note that these observations which enable us to localize lesions of the cord so accurately, come from the surgeon, the clinical physician, and the experimental physiologist. With reference to the cilio-spinal centre, while we see myosis in spinal lesions, it is most frequent, perhaps, in aneurism pressing on the cer-

vical sympathetic, in which it is by no means uncommon to see preliminary dilatation and the subsequent development of myosis, which persists on the affected side. All the features of paralysis of the cervical sympathetic may not be present together; thus, we not infrequently see myosis without narrowing of the palpebral orifice, or retraction of the bulb. Dr. Osler then referred to a case of pressure on the cervical sympathetic due to a tumor secondary to epithelioma of the leg.

Dr. CHARLES K. MILLS.—This paper adds one more contribution of a valuable character to assist us in the work of exact diagnosis.

In speaking of segmental localization, Dr. Starr referred to the spinal representation of muscles. I believe that a better expression for the cord as well as for the brain is the "representation of movements." This helps us to simplify and to render exact our method of looking at this matter. The same is true with reference to sensory representation in the cord. It is a representation of areas in the skin, not of nerves. Indeed this has been indicated by all that has been said to-night.

This question of segmental spinal localization has, as we all know, been applied to the explanation of functional diseases, particularly by Head, and this is one of the most interesting matters in connection with the subject. I had hoped that Dr. Starr would have referred to this. Head takes herpes zoster to give him an objective method of demonstrating his points. He holds that we have in the eruption of this affection, segmental localization, and not as has been commonly taught, merely nerve representation; and he believes that many functional affections have areas of cutaneous hyperæsthesia which he attempts to show correspond very closely with the areas of skin in herpes, and that these represent the segments of the cord affected. This is carrying studies of this kind a step further in a very interesting direction. If the observations are correct, they will perhaps throw new light upon our views with reference to certain traumas of the spinal cord, and will help us in our studies of hysteria.

With reference to Brown-Sequard paralysis, I do not think that the position cited by Dr. Lloyd with approval, can be sustained. The sensory decussation in the cord is cellular, rather than a mere fibrous decussation, as was formerly held. The view now is that the transmission of nerve impulses is by cells—by contact of cells and

thin processes—and not by continuity of fibres. This being the case, as I pointed out several years ago in an editorial article in the *Medical News*, the destruction of the spinal decussation by the lesions of syringomyelia, will account for the sensory phenomena.

The correct view according to the most recent investigations, would seem to be, that the decussations of the fibres which constitute the great sensory pathways for the forms of so-called common sensibility—touch, pain, temperature, etc.—take place in the cord and the oblongata in two ways: (1) by crossings in the spinal commissures at all levels of Golgi's commissural cells conveying the pathic and temperature impulses to Gowers's ascending antero-lateral tract; (2) by the crossing in block or mass of the tactile sensory tracts of the columns of Goll and Burdach, just above the cuneate and clavate nuclei at the so-called decussation of the fillet or upper sensory decussation. From this level upwards all the fasciculi for common sensibility pass cephalward together. According to this view, irregular sensory phenomena might arise in cases of peculiarly distributed unilateral lesions of the spinal cord—tactile and motor loss for instance, being shown on the side of the lesion, and impairment of the pain and temperature sense on the other side.

Dr. FRANCIS X. DERCUM.—With reference to the point in regard to the association of flacid palsies with exaggeration of the knee-jerk, we are reminded of the type of spinal syphilis which has been isolated by Erb, in which there is this flacid paralysis without a spastic condition and yet with an exaggerated knee-jerk. Unfortunately there are no autopsies to explain the seat of this lesion. However, in a number of these cases, there are also ataxic symptoms which would suggest that the postero-lateral columns are also involved. In other words, some of the cases suggest ataxic paraplegia. It may be that slight involvement of the postero-lateral columns in specific myelitis involving the pyramidal tracts accounts for the peculiar association of flacid paralysis with exaggerated knee-jerk.

Dr. G. BETTON MASSEY.—A case seen by me some five years ago offers corroboration of Dr. Starr's remarks in two instances. The case was that of a lady who had sustained a fracture of the sixth or seventh cervical vertebra, exactly which one was not determined, as a post-mortem was declined. There was complete

paralysis below the level of the shoulders, including the arms. She lived for ten months and died of intercurrent disease. Her condition five months after the accident was that of paralysis as mentioned; the arms were decidedly contracted, while below the level of the arms the paralysis was flacid. The reaction of degeneration was present throughout the paralyzed parts. There was also a hyperæsthetic area joining the paralyzed and healthy parts.

Dr. M. ALLEN STARR.—Brown Sequard paralysis presents one of the puzzles of neurology. It seemed to me in reading Head's paper, that possibly he might have found some explanation for the Brown-Sequard phenomena on the theory which he has developed so carefully of referred sensation. As I have pointed out, a patient who is totally anæsthetic below a certain line of the body feels a sensation produced in that anæsthetic area, not in the area where it is produced, but at a point in the hyperæsthetic zone above the zone of anæsthesia. It seems to me that it is not impossible that we may find some explanation of the Brown-Sequard phenomena in such erroneous conscious reference of sensations which come from another source.

Dr. Lloyd alluded to Golgi's observations showing that most of the fibres pass up the same side of the cord. Yet some of Golgi's stained sections show that there are many fibres that do cross the cord in the posterior part of the commissural portion of the cord. In the last edition of Kölliker's book, the decussating fibres are pretty well demonstrated. I do not think that we can doubt the existence of decussating fibres and sensory decussation in the posterior portion of the cord. The facts are well summarized by Marie, in his last book, in which he describes a number of cords examined after long standing amputation of certain limbs. In these cords ascending degeneration was found not only on the side of the amputation, but also in the other side in the posterior columns of the cord. This is shown in his diagrams of degeneration in the tracts of the cord.

The statement that I made with regard to the cervical sympathetic on the authority of Kraus, was that in lesions of the cervical sympathetic nerve in the neck, there were not only disturbances of the pupil, narrowing of the palpebral fissure and retraction of the bulb, but also unilateral sweating and flushing of the face, and that when there was lesion of the cilio-spinal centre in

the cord, no flushing of the face nor sweating was present.

I do believe that movements are represented in the cortex, but it seems to me that the phenomena present in anterior poliomyelitis where individual muscles are picked out by the disease and atrophied, rather tends to the view that muscles are represented in the cord rather than movements. It does not seem to me that in anterior poliomyelitis you have a certain set of movements obliterated as you have in cortical lesions, and I would therefore make the distinction, that muscles are represented in the cord and movements in the brain.

With regard to Head's views; those with reference to herpes, I have been able to confirm, but those in regard to cutaneous hyperæsthesia from internal disease, I have been unable to confirm. Head holds, for instance, that in cancer of the stomach, there is pain not only in the region of the stomach, but also distinct cutaneous hyperæsthesia, which is limited to a definite area corresponding to the segment of the cord connected with the stomach. I have examined many cases of disease of the internal organs, but was not able to find a single instance in which there was the cutaneous hyperæsthesia described by Head.

Hysterogenic Zones.—Dr. Clozier, of Beauvais, France, concludes a work on hysterogenic zones as follows:

1. Hysteria is a reflex disease of stomachic origin.
2. Excitation of the hysterogenic zones will certainly provoke a crisis, in all typical subjects.
3. Strong pressure applied to that point of the thorax against which the apex of the heart strikes, will instantly arrest the crisis.
4. The same result has been obtained by tickling the vault of the palate.
5. There are similar zones to be discovered in other portions of the body.
6. In recapitulation, and in fact, the attack or the crisis as well as hysteria itself are reflex states.
7. He does not admit that hysteria is caused and dependent upon multiple and undetermined causes.—*Gazette des Hôpitaux*, No. 114, 1893. F. H. P.

Book Reviews.

A MANUAL OF DISEASES OF THE NERVOUS SYSTEM. By W. R. Gowers, M.D., etc. Second Edition, Revised and Enlarged. P. Blakiston, Son & Co. Philadelphia.

Gowers' Manual of Diseases of the Nervous System is to the student of neurology what Strümpell's text-book of general medicine is to the general practitioner, the best of its kind in any language. The result of the labors of Gowers is a monument as nearly imperishable as human labor can be unless it be the work of a genius. A century hence or ten centuries it will be impossible to write the history of nervous diseases without drawing largely on the present work.

The book has its short-comings, and after pointing out our appreciation and great admiration for it, we may be permitted to refer to statements here and there which do not seem to be in entire accord with the advances of the past few years. In the first place, the pathology of diseases of the spinal cord and brain needs re-writing from the point of view of comparative pathology; for instance, along the lines on which Metschnikoff has been laboring for some years past and anyone who attempts to write the pathology of those diseases to-day without utilizing the latter's results, will leave an apparent gap. Gowers, particularly, is most willing to accept the statements of observers worthy of credence in regard to newer conceptions of inflammation and degeneration.

Acute myelitis is stated to be a common lesion. This opinion has not been corroborated by other clinicians. In the etiology of the disease not sufficient emphasis is given to infectious processes as causative factors of the disease. It is not at all improbable that most cases of acute myelitis are either of an infectious nature or are, as Oppenheim insists, cases of compression myelitis. Gowers emphasises the importance of syphilis and alcoholism as direct causations, but just how these diseases, the most potent of all in causing degenerative changes all over the body, produce in the cord acute inflammatory changes is not at all apparent.

The persistence of the patellar reflex in a small number of cases of locomotor ataxia is not explained. Yet it has been conclusively shown that when Westphal's region (the dorso-lumbar junction) of the cord is not involved the knee phenomenon may persist. Eichorst points out that there are occasionally cases of tabes in which, notwithstanding the normal condition of Westphal's region, the knee-jerks are lost. In these cases the interruption of the reflex arc is not in the cord itself, but in the periheral nerves and due to a neuritis. The recent investigations of the

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gram, such as is here presented, demonstrating the areas of skin upon the arm which are related to the various segments of the cord between the second dorsal and the fourth cervical.

1. The first area is a narrow one upon the inner side of the arm and forearm, extending down to the wrist, but not involving the hand. This includes a small zone both upon the dorsal and palmar surfaces of the arm and forearm, but is quite narrow. While it is probable that the upper portion of this area in the axilla is related to the second dorsal nerve, as Head maintains, I can find no exact lesion of the cord limited to the second dorsal segment and associated with such a limited anæsthesia to prove this statement.

There is a case reported by Charcot,¹ in which a bullet wound involved the first dorsal nerve only, and in which a small area in the axilla remained sensitive; the other parts included in area number one being anæsthetic, but as no examination of the cord was made in this case the conclusion drawn from it is of no more weight than that which might be drawn from a knowledge of the anatomy of the intercostal-humeral nerve. Area number one corresponds to the first dorsal segment.

2. The second area includes the ulnar side of the

¹ Arch. de Neurol., 1891.

hand, both palmar and dorsal surfaces, the little finger and one-half of the ring finger. It also includes a narrow strip of the skin upon the dorsal and palmar surfaces of the forearm and arm up to the axilla. This is proven by the fact that when lesions invade the eighth cervical segment of the cord the zone of anæsthesia upon the front and back of the arm and forearm is decidedly wider than when the first area alone is anæsthetic. It affords also a confirmation of the statements of Sherrington that there are no isolated patches of skin entirely separated from the body related to the sensory nerves. The second zone corresponds to the eighth cervical segment.

3. The third zone extends to the middle line of the middle finger, includes the middle of the palm and back of the hand and runs up the centre of the forearm and arm on both surfaces. This corresponds to the seventh cervical segment.

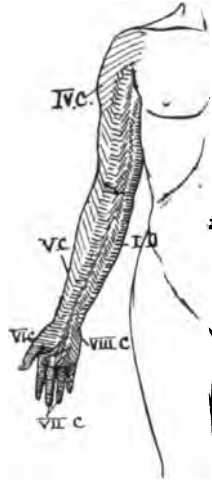
4. The fourth zone includes the remaining skin of the fingers and thumb and of the hand as high as the wrist and a narrow strip of skin up the forearm and arm on both surfaces to the axilla. This corresponds to the sixth cervical segment.

5. The fifth zone includes the skin upon the outer side of the forearm and arm on both surfaces as high as the insertion of the deltoid muscle. This corresponds to the fifth cervical segment.

6. The facts that in lesions as high as the fifth segment there occasionally occurs hyperæsthesia over the top of the shoulder and in the region of the supraclavicular nerves, and that in pachymeningitis the pain is felt here, leads to the belief that the fourth segment is in relation with this area. But in as much as lesions of the fourth segment of a destructive nature are uniformly fatal no case of anæsthesia can be found to determine the exact extent of skin which corresponds respectively to the fourth and third cervical segments.

It is hardly necessary to point out the differences between the areas of anæsthesia produced by cord lesions and those produced by lesions of individual nerve trunks, although a glance at the diagram and its comparison with Flower's well known plates shows this immediately. It is also evident that a study of the anæsthesia occurring in spinal cord lesions and that occurring in multiple neuritis, affords an important point of diagnosis between these two conditions. It will be remembered that in multiple neuritis, the anæsthesia affects all the fingers

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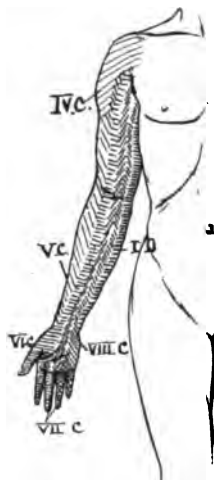
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“That
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matter,
Sir.”

(Merchant of Venice.)

THE Primary inability of the child's gastric secretion to properly digest its nourishment is the initial cause of Cholera Infantum in almost all cases. The trouble usually commences as a functional dyspepsia, which results, secondarily, in a true inflammatory process. Lactopeptine, by remedying this “very defect of the matter,” places the little patient in a better position to allow nature to resume her benignant sway. Lactopeptine is prepared in accordance with nature's laws and contains, in the natural proportions, all the agents which she employs in the digestion of foods.

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ADDRESS BEFORE THE FIFTIETH ANNUAL
MEETING OF THE AMERICAN MEDICO-PSY-
CHOLOGICAL ASSOCIATION, HELD IN PHIL-
ADELPHIA, MAY 16th, 1894.

By S. WEIR MITCHELL, M.D., LL.D.

Philadelphia, Pa.

I AM here to-day under circumstances so unusual, that I may be pardoned, if I explain them in order to justify the frank language of this address.

When your representative, Dr. Chapin, asked me to be your speaker on this important anniversary, I declined. It is customary on birthdays to say only pleasant things, and this I knew I could not altogether do. I foresaw a struggle between courteous desire to follow a kindly custom and the duty to greatly use a great occasion. When Dr. Chapin, after consulting some of you, came back to say it was still your desire that I should speak, I reflected that men who could thus ask the criticism, which they knew must come without mercy, were well worth talking to. I said, at last, that I would address you to-day, but that it would be boldly and with no regard to persons. That was a momentary insanity; I have been sorry ever since.

You are on the dividing year of your first century of

life. You look back with just pride as alienists on the merciful changes made for the better in the management of the chronic insane. It is to be feared that you also have cause to recall the fact that as compared with the splendid advance in surgery, in the medicine of the eye and the steady approach to precision all along our ardent line, the alienist has won in proportion little. This is partly due to the nature of the maladies with which you have to deal; but there are many other causes at work to retard the wholesome progress. Just that which is impairing the usefulness of the lesser specialties in medicine has been more gravely enfeebling your value, and retarding your development. I mean the tendency to isolation from the mass of the active profession. At first, as concerned the eye for instance, this separation seemed but too complete—the new terms, the methods, the instruments of the ophthalmologist were for a time absurdly unfamiliar. It is not so at present. The general practitioner has come again into touch of the oculist, and understands his terms and his methods. In fact, every sudden advance of a brigade of our great line for a time appears to break our ranks; but soon we get up to it and go on as before.

With you it has been different. You were the first of the specialists and you have never come back into line. It is easy to see how this came about. You soon began to live apart, and you still do so. Your hospitals are not our hospitals; your ways are not our ways. You live out of range of critical shot; you are not preceded and followed in your ward work by clever rivals, or watched by able residents fresh with the learning of the schools.

I am strongly of opinion that the influences which for years led the general profession to the belief that no one could, or should, treat the insane except the special practitioner, have done us and you and many of our patients lasting wrong.

Standing here in the home of Rush, I cannot forget that he was an alienist and a general practitioner; nor

can I cease to lament the day when the treatment of the insane passed too completely out of the hands of the profession at large, and into those of a group of physicians who constitute almost a sect apart from our more vitalized existence. What evil this has wrought, what harm it has done to us and to you I shall try to show. Why it has been so much more grave in its results here than in Europe is not clear to me, or would take too long to discuss.

I should, indeed, be easy enough in mind if I had only to criticise an uneducated public, ignorant legislators, and the boards which control our civic, state and endowed institutions. But I shall have frankly to reproach as to certain things many of those who still bear the absurd label of "medical superintendents." If any here think it pleasant to fire opinions into a crowd, not knowing who are hit, whether his shot finds out the right man, or only annoys the entirely efficient, I am not that man. Moreover, abrupt statements are apt to be needlessly annoying, and I have not time to be other than brief to abruptness.

But before I go on to the uncongenial task of being disagreeable, and, perhaps, ending with criticism which you may call ignorant, I would say a word.

I at first meant this address to be weighty with statistics and with carefully gathered knowledge of the way in which the medicine of the alien mind grew up in this country. After immense reading I gave it up, but it left with me the conviction that within ten or fifteen years things have been improving, and that within your own ranks are men who had early seen the need for much of what I urge to-day. Without this qualifying belief I should have hesitated still longer as to this ungracious work.

There were in this country in 1890, 120 public and some 40 private asylums; nor does this include insane wards of county alms houses, or those singular institutions known as sanitariums, which receive many insane and are, I fancy, little troubled by the lunacy

commissioners. In 1889, the patients in these 160 hospitals numbered 91,152, and were treated at a cost of \$10,692,000 over and above \$2,209,000 spent that year in buildings.

The state and civic asylums are under boards appointed usually by governors of states, or mayors, sometimes with as much regard to politics as to quality of useful fitness. The great endowed asylums are ruled by self-constituted bodies, which in certain cases have the ponderous task of also managing a general city hospital.

Then there are the private asylums which have no boards and manage themselves, and are commercial enterprises. Over all, in many states, is the more or less efficient machinery of the lunacy commissions. Usually good enough as collectors of statistics and as historians, these bodies are, as to visits and accurate inspection in the higher sense, most plainly ineffective. Too often they are made up without one member who can be called an expert in neurological medicine. Is this vast trust so handled as to satisfy the intelligent conscience of my profession? I have read and thought about its every phase an inconceivable amount. I saw that here or there some one had shown what could be done in the face of preconception, traditional usage or want of means, and was so much ahead of his fellows as to excite wonder that such intelligent examples should lack efficient following. Yet, after all I thus learned of growth and thoughtful gains, it did seem to me that the sowers of good seed were sadly few, the progress strangely slow. When, indeed, I began to write what I had to urge, my charges appeared to me so grave as to require the expression of other opinions than those of a single thinker in order to give him the courage to speak them to the world. I, therefore, resolved to call a jury and use its decisions to modify or give force to my own.

The men before me see asylums from within. Some live on quietly. Some are vaguely dissatisfied. Some are half-hopelessly striving to better things, which only in part lie within their power to change. Outside, and of

late years, your asylums are relentlessly watched by one of the ablest groups of men known to me, the neurologists and consultants of our cities. To thirty of these I addressed the following letter :

DEAR DOCTOR.—I have been asked to deliver, in May, the address on the occasion of the Fiftieth Anniversary of the Society of the Medical Superintendents of the Insane, now known under the name of the Medico-Psychological Society. I have consented with the clear understanding that I shall be free to represent the best professional opinion in the country to the gentlemen who are at the head of these institutions. I am told that I shall have full freedom. To enable me to carry out this plan I have addressed duplicates of this letter to a few of the leading American neurologists, and to certain consultants not neurologists. May I ask you to answer the following questions :

Do you think the present asylum management of the insane in America as good as it could be made?

What faults do you find with it?

If you had full freedom to change it what would you do?

I do not want a written treatise on the subject, but within a reasonable time a reply of such brevity as will cover the ground for an expert.

Yours truly,

S. WEIR MITCHELL.

The men I called to my aid are physicians accustomed, in recent days, to treat the insane. Some of them are familiar with asylums; most of them have contributed largely and originally to neuro-pathology, symptomatology and therapeutics. No man can afford to set quite aside the criticism of their replies. To sustain my position I print in an appendix their letters. They are severe, but not unkindly; nor do they fail to point out how largely you are trammelled by custom, lack of means, and above all, in some cases, (and this is

saddest and most shameful of all), directly or indirectly by politics.

I have used, also, certain communications from able asylum officers, which I cannot print, and, also, I have had in the past letters from intelligent people, some of them doctors, who speak of their own experiences as patients in asylums, and make reflections thereon.

But it is the arraignment of the neurologist which ought incessantly to trouble you and the boards which you have to manage—for the management of managers is an important business. It is this outspoken discontent which ought to make you ask how far you, yourselves, are responsible. If we are right, neither states nor boards nor you are ardently living up to the highest standard of intelligent duty.

And now as to boards of managers.

You know too well, I fear, how state boards are generally constituted. There the mischief begins. They meet at exceedingly variable intervals—some monthly, and some every third month. When once they have decreed a superintendent physician for the asylum his reports must largely guide them. I approach a delicate matter when I say that in some states the selection, both of these boards and the appointment and continuance in office of a physician superintendent, is said to be more or less a question of politics. I am told that this inconceivably shameful thing is past doubt. But to accept such office as a mere bit of party spoil! Can a man do that and be fit for the work? Let us hope it is all mere scandalous gossip, and turn from a too painful topic. Money changers in the temple! Ward politics at the bedside of the lunatic! How can one with patience even speak of it?

These boards have to learn duties and acquire knowledge common enough among neurologists. But what governor of a state comes to us and asks whom he shall appoint? That you depend for sympathy, intelligent help, and even your livelihood, on the continued good-will of bodies thus made up is a grave evil. It leads to this

need to manage the manager, to want of decision, to rose-colored reports, to deference to potent trustees as to your minor appointments; or else these boards do not manage at all. The steward and physician run the concern. Meetings are rare; business is kept straight of course; and so we blunder along.

But, surely, the private or endowed asylums should be better off. I think not. Their boards are self appointed, and are made up of very excellent, kindly, middle-aged clergymen, merchants, lawyers and the like. They fill their own vacancies as they please. I do not see why there should not be on these boards one or more physicians, and not old ones, either. Also, I should like to drop managers every ten years, and change committees as often as once a year.

The psychology of boards is, as yet, unstudied. It is not in the text-books. The best of them get wooden and lose capacity to change with ease. A man who is too self-critical is sure to lack enterprise, and a board is nothing if not critical. Even the feeble have this retarding power, and soon or late, the doubts and prejudices of the old cripple with splints of inertia affect the mind-joints of the fresh comers. All boards age rapidly, and acquire young the senile characteristics. They assimilate with difficulty and abhor change; meanwhile, they are dealing with an art and its assistive sciences which are changing at such a rate as taxes the industry and watchfulness of the best of us to keep in the van of their bewildering advance. All this, the boards which manage our hospitals rarely apprehend. That our art fails in the same ratio as our science falls behind, is not such a truth as the mental structure of boards can grasp; and hence half-equipped hospitals, and hence new hospitals built with small contribution from modern constructive art, the old stupidities in brick and stone repeated, as is happening even now as I write.

I sometimes think that it would be in our great cities, a wise thing to have any hospital staff say frankly what

it thinks of the management back of it. Perhaps I had better pause here.

A managing board has committees, and these inspect their hospitals,—I really do not know how often. Such occasions used to greatly amuse a sometime patient of mine, convalescent from much drink in a great asylum. He was given a good deal of freedom, and his letters to me delineating a managerial inspection were really worth publication in the interests of human mirth. Once I, myself, saw a large part of such an inspection. I assure you it was interesting. The visit was, of course, expected. Is it in human nature not to get ready just a little? We walked all over the wards, we spoke kindly to a few amiable patients, we asked a reasonable number of obvious questions, we partook of a very good luncheon, praised everything, including the cook, received bouquets or grapes, and, after three hours, departed, having made an inspection! I thought it a neat little comedy; no one there suspected the audience of smiling not with, but at, the players. It seemed to please the superintendent and the managers, and, if I saw certain things which were not after my mind, I was not a manager and had no experience except of those ruthless inspections in the great war. A visit without warning, by night, or at a meal-hour, causing relentless blanks to be filled, a report to a despotic authority, and all with no least will, or wish, or reason to hide the truth.

It is certain that hospital inspections by managers are simply valueless. Every doctor laughs at them. Yet no one thinks these honest gentlemen either stupid or undutiful. They merely do not know their business, and do not know that they do not know. Yet to learn this work were easy. Why not have blanks to tell them what to see? Why not condescend to learn? Why not drop in at a meal, at night? Really this whole thing is of incredible stupidity.

Corporations are said not to have souls; I sometimes think that this grouping of men with selection limited

by creed, habit, or social caste, lessens the individual good sense, or kills its large use by the cumulative curse of critical doubt. I have seen hospitals that smelt and looked like second-class lodging-houses, and have found their managers serenely contented. What we want is a training-school for hospital managers. Perhaps some of you keep one. I wish you all success.

I do not know just how the boards of your special hospitals appoint a physician. I wish I thought our general city hospitals were governed as to appointments in some degree by the scientific record of the man. I would stand on that alone if I had to be limited to one form of knowledge of a candidate, and in any case it would influence me largely. In one hospital of this city, the medical staff nominates, and the board takes or rejects at will. There, too, the staff sit in the board, but do not vote. I consider this the approach to an ideal hospital management. It works perfectly.

I know clearly what a group of neurologists will do in the ideal days, when a board of humble-minded managers desires us to select a superintendent of the minds and bodies of men out of their poor wits. I fancy we shall ask first for large general hospital experience, for ample knowledge of psychology and pathology. Then we would want to know what books or papers on the insane the man had written, whether these were fresh with new thoughts, or made up of vague pilferings from better brains. We should wish him to have other qualities,—but of this again.

So much for your rulers—the hospital boards. They have much to learn, and those who appoint certain of them have still more to learn. I have dealt especially with these because I think their members do usually desire to do right, and know not how. Strangely enough, the best of boards are not always those of the endowed asylums, but the changing groups of the State boards. The permanent boards more readily acquire the contagious disease of hospital torpor. It is well known to us, and has no least excuse where money is abundant. I

have seen it creep into quite young institutions, and have seen it cured only by very radical means. Also, it is strangely insidious. The price of security from hospital torpor, from the sclerosis of custom, is constant vigilance. This malady comes to one institution from a too wooden board ; it comes to another from the inertness of doctors. Hospitals, good to-day, in a few years may become bad. I saw the worst hospital in this city pass quickly into the first rank ; I have seen a hospital once first, drop to a second rate.

I have said the ailments of hospitals begin, as a rule, in the governing boards ; they do not end there.

In our general hospitals there is a diffused medical authority, but yours is a monarchy more or less limited. And now, my next query is as to whether you, who thus govern and make reports and live amongst your armies of the insane, are, in all respects, doing what you should and might do. We have done with whip and chains and ill-usage, and having won this noble battle have we not rested too easily content with having made the condition of the insane more comfortable?

The question we here ask at starting is if you, who are so powerful within these alien camps, are really doing all that might be done without serious increase of expenditure? Frankly speaking, we do not believe that you are so working these hospitals as to keep treatment or scientific product on the front line of medical advance.

Where, we ask, are your annual reports of scientific study, of the psychology and pathology of your patients? They should be published apart. We commonly get as your contributions to science, odd little statements, reports of a case or two, a few useless pages of isolated post-mortem records, and these are sandwiched among incomprehensible statistics and farm balance-sheets ; and this is too often your sole answer. Where, indeed, are your replies to the questions as to heredity, marriage, the mental disorders of races, the influence of malarial locations, of seasons, of great elevations, all the psycho-

logical riddles of a new land, a forming breed, never weary of quickening the pace, of inventing means of hurry—relentless workers? When I put such questions I am always met with the doleful reply. “We have no time; we want more money; we have not enough assistants.” I am quite willing to admit that for the careful treatment of the possibly curable insane, none of you have enough help. I grant that, but it is not all. I could say the like of many a fertile man in this city. I can but partially admit this endless plea of overwork in extenuation of the charge of scientific unproductiveness; that serious symptom of a larger malady. Surely the immense and habitual hospital work among the sick which numberless city doctors do, their professional teaching, their clinics and societies, the endless cares, trusts, and social duties of a city life, do these make them fail of scientific productiveness? No, it is not time alone your people want. There is something defective besides number in your organizations. And as to this, what prevents your endowed suburban hospitals having any quantity of young resident physicians? It is only to choose with care and to feed them. There is much they can do, and be taught to do, which will relieve you, and set you free for the higher work we ask of you.

But if your own institution is unhappily connected with a general hospital, do not let it send you residents for the first three months of their two year term, as is done, I hear, in this city. Could there be a more useless and thoughtless way of giving these young men a knowledge of insanity?

And then as to your paid assistants. You need as aids men who, first of all, have had long training in a general hospital, and here, the choice, I suspect, is left largely to you. Ask your boards to have competitions for your permanent assistants. Insist on hospital training, knowledge of psychology, of neuropathology, and then demand of your people original reports or product of some kind. I find myself that nothing is so useful as original research to urge on my

aids. But then you must lead or they will not go the way you would have them go. I should insist, were I you, that your aids spend daily some hours outside of your walls and have a long summer holiday. There have been some among your best who have insisted that incessant contact with mental imperfection is not a wholesome thing.

Want of competent original work is to my mind the worst symptom of torpor the asylums now present. Contrast the work you have done in the last three decades with what the little group of our own neurologists has done. To compare your annual output with the great English or German work were hardly a pleasant thing to do. Even in your own line, most of the text-books, many of the ablest papers are not asylum products. What is the matter? You have immense opportunities, and, seriously, we ask you experts, what have you taught us of these 91,000 insane whom you see or treat? You will point to certain books, some good work in this or that asylum, but, as we judge you, to no such amount of thoughtful output as your chances might lead us to expect.

There are other material failures by which we test as much of your work as we can see, and thence suspect the precision and general value of what we do not see. When we ask for your asylum notes of cases, or by some accident have occasion to look over your case books, we are too often surprised at the amazing lack of complete physical study of the insane, at the failure to see obvious lesions, at the want of thorough day by day study of the secretions in the newer cases, of blood-counts, temperatures, reflexes, the eye-ground, color-fields, all the minute examination with which we are so unrestingly busy. It is not thus in all your asylums, but you will see from the letters appended that I am not alone in this critical complaint. Not so many years ago in a certain asylum I could not get a stethoscope or an ophthalmoscope; and too often when we receive a patient, and write and ask for his hospital record it is such as would surprise, for

meagreness, the resident of a city hospital. I had recently occasion to see the printed schedule guide to symptom notes in an asylum ; it was oddly defective, had been ten years in use and would excite a smile from any of my clinical aids. If, as to all these defects, I am still told that they are due to lack of means, I make answer that our criticism*applies as decisively to some of the amply endowed asylums as, to those for the poor of the states.

A clever woman once said to me that only the rich did not get the worth of their money, and here it is true. Set aside the state hospitals for the while, and let us consider the others. Why have not more of you started training schools? This would at once enliven the air of the place and assist you to get good nurses. Can you get these at from twelve to eighteen dollars a month? No. But for nothing you can get them, because if you train nurses during two years, the second year the nurse is of real value and can be promoted. Some will stay on with you, and then, if you furnish nurses really trained to the care of the insane you can reward your best nurses with convalescent cases leaving your care and able to pay, as we pay outside, larger prices than you can give as wages. Try this, and see how it works. You will get better aids. Make your young men teach the nurses. There is nothing teaches the teacher like teaching. And let me helpfully insist that there is a real outside demand for nurses trained to intelligent care of the insane. I wanted a dozen this winter. The fact is your nurses are, as a rule, of an unfit and quite uneducated class. When one of them comes to me to take a case, or comes with a case, and I give her a careful schedule of the day, I find I have to teach what a pack means, and a drip sheet, and Swedish movements, and massage, and soon we part.

Indeed, we with difficulty understand how you get on in your work with the nurses you employ. It must make the individualization of treatment impossible. The thinking general practitioner knows that what he has to deal with is not a disease, but a disease plus a man. This

is deeply true of insanity. Nowhere is it more needful to study the human soil in which the disorder exists. We think you too largely fail to do this, and we think such success impossible without educated nurses taught to observe and to handle the insane.

Have you people in your asylums trained to use massage? I see plenty of folks in your wards who need this potent blood-stirring tonic. In how many hospitals is there an electric room and a trained electrician? I wrote an asylum some time ago to ask for a statement of the electric reactions in a certain case. I was told in reply that the muscles "moved pretty well with a faradic battery!"

You will see in the appended letters that some of us think hydro-therapeutics of great value. How many hospitals are provided with the appliances for such treatment? How many of you employ it at all? How far are your nurses acquainted with its various forms of use? Much of that I here speak of can be obtained at slight cost. But when I read your reports (I have read many of late) I do not find an urgent, repeated demand for these obviously needed things. I find too comfortable assurance of satisfaction; too much stress on mere amusements; too little on rewarded work; too many signs of the contented calm born of isolation from the active, living struggle for intellectual light and air in which the best of us live.

The cloistral lives you lead give rise, we think, to certain mental peculiarities. I could tell you how to mend them; I shall by and by. You hold to and teach certain opinions which we have long learned to lose. One is the superstition (almost is it that) to the effect that an asylum is in itself curative. You hear the regret in every report that patients are not sent soon enough, as if you had ways of curing which we have not. Upon my word, I think asylum life is deadly to the insane. Poverty, risk, fear, send you of true need many patients; many more are sent by people quite able to have their friends treated outside. They are placed in asylums because of the

wide-spread belief you have so long, and, as we think, so unreasonably, fostered to the effect that there is some mysterious therapeutic influence to be found behind your walls and locked doors. We hold the reverse opinion, and think your hospitals are never to be used save as the last resource.

I have found some heads of asylums a trifle shy about discussing the question of the occasional use of mechanical restraint. There lingers a dislike to admit that it should never be used, as, we thank God, some of your best assistants earnestly believe. We think it a question settled past argument. Many years ago while using it I got a lesson never since forgotten. During the war, Drs. Morehouse, Keen and I, had always about eighty to one hundred epileptics in charge, and some insane. We employed at times the camisole, or straps, in protracted convulsions. I tried them once on myself a half-hour for a purpose needless to mention. Before ten minutes had gone I began to have a half frantic sense of desire to fight for freedom. It was really very hard to conquer. Try it, and you will think long before you add to insanity this temptation to be violent.

We think, also, of your too constantly locked doors and barred windows, as being but reminder relics of that dismal system which we are pleased to think is gone forever. I presume that you have, through habit, lost the sense of jail and jailor which troubles me when I walk behind one of you and he unlocks door after door. Do you think it is not felt by some of your patients?

I know this is a hard question, much discussed. Grated windows and bolted doors may be more or less needed where, as in State asylums, insane hordes are in overcrowded dormitories, and attendants are absurdly few. But elsewhere, these irritating means might be used far less than they are if only you had more and better nurses. Many of you believe that these barriers do no harm; I incline to think you wrong. Here is what an able physician wrote years ago. I once printed his comments in a paper partly fictitious.

He writes: "I then felt what I suppose thousands have felt, the exasperation of these locked doors. Twice as I passed one I furtively tried the latch, and in all my weeks of confinement I never came near such a door without a wild desire to open it. If it were of any use to lock these doors all day, except to save attendants from the need to be watchful, I should not mention the matter, but the precaution is a foolish one, save in rare cases; and if a sane man wants to test his feeling in regard to it, let him get some one to lock him in a room—it may be one he does not care to leave for hours. The effect is strange. He becomes at once uneasy and speculative as to when he will be let out. The idea of loss of freedom annoys him."

It chanced, indeed, to me many years ago to be locked up for half a day in a room. I was at a hotel in New England and broke the key in locking the door. The bell brought no one; the windows looked nowhere on man. It was six hours, or more, before I got out. I think of that when I walk down your grim, conventional wards and see some poor fellow try a door and walk away. I know how he feels.

My asylum should have no exercise yards; no airing courts. More attendants? Yes, and as little as may be of this quasi-prison business. And æsthetically there is something to be said. Into one ward I sometimes see open the rooms of people of almost all social ranks. They meet more or less unrestrainedly in the common hall. Do you think the educated and well bred do not feel this; or, too, the absence of refined table settings, or the dreadful formality of walls and furniture? I have letters which complain of these things. One woman says, "I dare say I was queer enough, but neither my tastes nor my manners were cracked," and then she goes on to criticise with some amusement the table and its furniture.

I took a clever woman through an asylum of late; she had never seen one. She is not a sensational woman—far from it. She said to me, "Oh, I should go mad here if I were not so when I came. Why can't some one

move the furniture about and make it look less sepulchral. And those parlors! I should like to be let loose there with a very little money and some women I know, How we would move things about."

I want also to say (and I am all this while speaking only of hospitals for those who pay), that the monotony of diet, the plain food, is constantly spoken of in the letters I refer to. I suspect that it is too often a just complaint on the part, at least, of people of the refined class. A friend of mine in one of the great asylums wrote, when mending, "I have heard of the horrors of asylums. Let me assure you that although there is much here that is sad, nothing is half so tragic as the diet."

Of the feeling of distrust concerning the therapeutics of asylums now fast gaining ground in the mind of the general public I have said nothing. This lack of medical confidence is of recent growth. Once we spoke of asylums with respect; it is not so now. We, neurologists, think you have fallen behind us, and this opinion is gaining ground outside of our own ranks, and is, in part at least, your own fault. You quietly submit to having hospitals called asylums; you are labelled as medical superintendents, and some of you allow your managers to think you can be farmers, stewards, caterers, treasurers, business managers and physicians. You should urge in every report the stupid folly of this. Knowing what we do of the rate of the growth of medicine, does any man in his senses think that you can be even decently competent and have anything to do with outside business? You may be fair general practitioners in insanity, but productive neurologists of high class regarding disease of the mind organs as but a part of your work? No—I think not. That, you cannot be if you are also in business. It is a grave injustice to insist that you shall conduct a huge boarding house—what has been called a monastery of the mad—and keep yourselves honestly able to move with the growth of medicine, and to study your cases, or add anything of value to our

store of knowledge. Some of you have, in a measure, shed this cumbersome coil of unprofessional business, but still declare yourselves overweighted with letters to write, people to see, and so much to do that it is clear either that you do need help and more assistants, or that you are cursed by that slow atrophy of the energizing faculties which is the very malaria of asylum life. Asylum life! There is despair in the name as there is in the idea.

And the title "superintendent." Of what? You have let the word go as concerns this society. Insist to your managers that you are physicans and no more. There may be something to dread in a label.

The many grave questions which remain I can do no more than lightly mention. Some I may but touch and leave as texts for thought. I have notes of six cases dismissed as cured from great endowed hospitals without one written word of warning or direction as to the work, the play, the diet, holidays or future of these people. When you find a case getting well, and let it go home or elsewhere, is it as common as this would seem to make it that you no further concern yourselves with it? I never had much evidence that the reverse is often done, and yet with some of us mere outside practitioners the future of our convalescent, or cured, cases is a matter of the most thoughtful care and of the most anxious solicitude, of long written instructions how to live so as to avoid relapses.

As to work for the chronic and convalescent insane, I never yet saw in America the hospital where all was done that can be done in this direction. These alien people are relatively capable of bribery. Tobacco, later hours, better diet, larger freedom, a little wage, the use or non use of certain privileged rooms, leave among women to wear this or that, putting some who shirk work with others who do work, the influence of example, all these helps may be more ingeniously varied than they are. But as long as you pay common nurses (whom, perhaps, you do well to describe as attendants), untaught

and uninterested, to watch hordes of people, or to preside over men and women far better educated than those who watch them you will do little with this essential means,—work. I think there must be no effort to make this work pay. It is education we want. Moreover, if you can make the work interesting and productive, it will be best.

As I want this address to help you and to be read by laymen, I shall ask to have added a newspaper report of that noble object lesson seen at Wernersville, when one hundred and thirty insane were set to work in the open, guarded by no walls, and there did work which would amaze many a so-called superintendent. I wish the account could be scattered wide. It greatly affected me as I read it. I wish, as an object lesson, the good people of this city could have seen this merciful success where the insane were working out of doors. For then I would take them where, in the sadness of our city wards at Blockley, the insane, who have lost even the memory of hope, sit in rows, too dull to know despair, watched by attendants; silent, grewsome machines which eat and sleep, and sleep and eat. Once in the women's wards the bright cap and white aprons of the nurse of the training school were seen. She is there no longer. I should like to know why? It is condemnation enough to say that here are 1,100 insane, and that of these a small percentage are doing any work. This is not the fault of those in charge, or of any but the people of this great city. I dare not revile you for the moles and neglect the beam which makes us seem blind to the sin of this abominable wrong.

There is another function which you totally fail to fulfil, and this is by papers in lay journals to preach down the idea that insanity is always dangerous; to show what may be done in homes, or by boarding out the quiet insane, and to teach the needs of hospitals until you educate a public which never reads your reports, and is absurdly ignorant of what your patients need. Do you not see that what I need for every hospital is a

certain noble discontent, a vitalizing headship, which shall be itself scientifically productive, and shall insist on this from the aids? Believe me, the best hospitals of any kind are those where the most precise scientific work is done. There the treatment becomes accurate, the results best. In our city hospitals, the physicians are continually changing service and there is no single head. With you, there is but one head, and this may, if the head possess brains, have the huge advantage that its owner can suggest, direct and encourage research, and by his personal work and enthusiasm keep his whole hospital toned up to the highest intellectual and moral health. It is not a mere well-worked, so-called model, institution which I want to see, where easily pleased managers come and go, and routine is perfect, and every one is satisfied, and the nice little reports describe the amusements, and the new dairy and the statistics are there, and we lament the death of our efficient manager, Mr. Blank; the whole smug business as monotonously alike as are your asylum corridors.

Where, meanwhile, I repeat, are your careful scientific reports; where, the earnest note of indignant appeal to your boards and to the world without, which should help you and will not? Is this all nonsense? Not so. When you read the appended letters, you will see how constantly these men point out that it is the system which is most to blame, not you alone. My fear is that some of you would not change your organization if you could. My belief is, as to much beside that might be, and is not, that your lives are destructive of energy. You live alone, uncriticised, unquestioned, out of the healthy conflicts and honest rivalries which keep us up to the mark of the fullest possible competence. I hardly blame you. The whole asylum system is, in my opinion, wrong, and has been let to harden into organized shapes which are difficult to reform. How further it should change, I shall presently say; but until we have you all on our side, it will not change. Nor does it surprise me that so many are contented and ask no radical altera-

tions. I think I should in time become but formally dutiful, if I lived all my days in any kind of hospital. When I go into my clinic or wards, I take with me the fresh air of the outer world, and this is what you want. You ought not to live and sleep in your hospitals at all; you ought to be in contact with the world of sane men, having consultations outside, seeing us and our societies. At least you should have in your wards weekly consultations from without. That, I think, would be a good prophylactic against the inertia fed by the amount of hopeless cases which surround you. I cannot see how with the lives you lead, it is possible for you to retain the wholesome balance of the mental and moral faculties.

There should, I think, be in America somewhere one large, perfected hospital for the possibly curable insane, and it should of need, include a home for the education and uplifting of the chronic and hopelessly insane.

Let me conclude with a sketch of my ideal hospital; I seem to see it as I write. It is near to a city and close to a railway. Its grounds, fenced in, not by walls, but by railings, vine covered and hidden by trees and shrubs, are amply acred, and include some forest and wide, cheerful gardens. Without are the farm and vegetable garden. I go in with my patient. We drive through an ample gate, ever wide open and watched. There is no loop-hole for the gate guard to look out of, no mysterious opening of barred doors. We enter an avenue among flowers and trees, out of view of the larger buildings. Shall we drive up to a formal hall and cold doric portico, and be met by a smileless janitor, and then wait in sad expectancy the long delayed coming of the doctor in one of your vast, melancholy, unsympathetic parlors? No. We pause amid thick shrubbery at the side door, which is like that of a private house. In a small room, as pretty as taste can make it, we are received by a well-dressed head nurse, neat in cap and apron—pleasant and kindly she shall be. My patient is then given a room, temporary quarters, in a special reception house, for it is part

of my plan that this hospital shall be made up of grouped cottages, each with its family of ten or twelve, or less. In each is a head nurse and attendants. There are no bars, no locked doors. Apart stand smaller homes for those able to pay more. I want to get it as near to the life of the outer world as I can. At a distance, hidden by trees, is the administration building, vine clad, I trust, and flanked by the wards for those who can pay little or nothing. There are no barred windows, and here are open doors, with attendants ready to say a kindly word to the too restless. I can see you smile. It has been tried, I believe, and has not been found impossible. Connected or not (better apart) are the library, reading rooms, billiard and amusement rooms, and gymnasium. In the grounds are tricycles and bicycles, etc., tennis, and croquet grounds of course. Also, further away, are the work shops, with tools, lathes, all the means needed, and, too, the school rooms, for how do your chronic insane differ from the little defective ones at Elwyn? Yours are, many of them, like these children. I would have the kindergarten methods, and modelling and patterning and embroidery, etc. Let those who will not work watch those who do; use the contagion of example.

My patient is not at once put in charge of a nurse. An assistant, male or female, a physician, is with him for three days or more (one of his own class or above it). He shall study the case, and quietly record its mental peculiarities. As the patient gets used to him, and less suspicious, he goes over him physically with extreme care. Then there is the report with the added statements on his certificate, every detail of life, business, habits. A consultation with the physician in charge follows, and a decision as to the mental, moral and physical needs of the case, and, above all, in every instance, a written schedule as to how it is desirable that the day be spent; all of this the nurse shall read; I mean all of the notes. Is this too much? We closely imitate it in our own hospitals and in our private work. Every week for the acute cases the nurse turns in her written report as

part of her work. How far the patient has lived up to the schedule; how far not. It is added to the case, and the cases are kept as indexed cards, not in cumbrous books.

Of treatment I say no word. It would often include much that you do rarely use, and to which I have already alluded. You may have many means and many helps which we cannot employ except for the amply rich. Years ago I tried in vain to talk certain boards into having convalescent seaside homes, not farms near the hospital; I utterly failed. Now, this is coming, but not as yet is the need felt to have those homes where the alternative change of air is complete, as by the sea.

There is a steward for purchases and for care of farm-garden and grounds. The senior physician with no business cares, a trained neurologist, living in the city, spends two-thirds of his day in the hospital: he has only consultations in town. Then there are resident physicians in charge, who shall live in the house. On the female side it is a woman helped by women. After three to five years these aids should be transferred under a new and reasonable state system to another hospital; or, in an endowed hospital, changed yearly from one ward or group of patients to another. Here, alone, is rotation in office valuable. Under the chief are young physicians, internes who serve two years, and both classes compete to win these places, which are paid—as to the younger internes but modestly. One resident is a pathologist. There is a bath master; but in rotation a resident sees and becomes familiar with this service. We have, too, a skilled electrician. The nurses are taught massage, but there is one person who is, as to this, an expert. I would also have on the staff a city oculist and gynæcologist to be used on call, and above all, I would have once a week a long consulting visit from outside neurologists. For this visit the staff should select cases of doubt or difficulty, and this should be a serious and formal matter. The men chosen should be paid, and well paid, for I shall ask from them help in research and in the training of nurses. And as to these latter aids, they should have

very little pay the first year, and more and more as they elect to stay upon receiving their diplomas after two years.

Again I wish to emphasize the fact that the nurse is by far the most important part of my organization. How can you hope for the best help from the class we usually see in your wards? I could surprise you a little with the dismay and disgust expressed as to these agents by refined and educated men and women in their letters to me. A few minutes a day make your visits, and the rest of the time, where there is an attendant, is too often spent by your patients in society little above that of the cook or maid.

One wing of my control building shall have a good library of medicine, a laboratory, rooms for pathological research, and also (as we have in the Infirmary here) a room for the study of such phenomena as reflexes, reaction times, with chronographs and the like.

And now, the life, the soul, the driving power, shall be in the physician-in-charge. The training schools, the meetings for organizing combined or individual research shall have his eager care. He shall possess the ingenuity to point out paths untrodden by discovery, the energy to lead on these and to put life and vigor and sympathy into all the work. Above all, he must be gentle, refined and courteous and insist that good manners prevail. I have seen in asylum wards, and seen unrebuked, bits of discourtesy to a well-bred gentlewoman for which I would have dismissed a nurse on the spot.

Of the rest of this great, and quite possible organization, of the rewards for scientific work, of the extra compensations, or the medals for nurses who show courage or have exceptional success I cannot speak; nor of much else besides.

A good deal of this cannot ever be had in your state hospitals, for incredible folly has put most of them remote from cities. But suppose some great souled man, or some State, decreed such a hospital as I have made a day dream of, would it not become radiant of useful example far and wide? I used to be hopeless that any

board would ever rise to an intelligent apprehension of the splendid value of such a scheme. But already at Elwyn certain steps have been taken to secure outside counsel, help, and criticism, and I trust scientific use of the nine hundred defective children. The plan as yet lacks the essential element of pay, but perhaps this will come. Watch it and see how it works. The day dreams of the thoughtful sometimes materialize as practical working things, and the years will surely bring something like, or far better, than what I have sketched. If it will be created by the generosity of a man, or the educated demands of the Commonwealth, I do not know. But it will come.

And now, a word more. I accepted this ungracious post from honest sense of duty. I have said no word of dispraise or critical annoyance that I did not eminently dislike to say. I may be wrong as to some men and to some hospitals. It would be strange if it were not so. But let me add this on parting. One preaches to a congregation. It is impossible to select individuals for blame or praise. Try not to be merely hurt or disgusted by the verdicts of my fellow neurologists and myself. If what we have said causes only bitterness and leaves you in thought, action and purpose where it found you an hour ago, then I have assuredly failed as I do not want to fail and had better never have spoken. If it should happen, please God, that my words bear fruit of good I shall get more happiness out of this occasion than I ever thought could come out of most distasteful task of a varied life. If I have hurt or personally annoyed any man here to-day I am, believe me, sincerely sorry. Perhaps many of you who do not feel vexed may yet rest sure that I am largely wrong in my censure and my theories; but fifty years hence, when we must all have been swept away, another will possibly stand in my place and tell your history, and to him and the bountiful wisdom of time I leave it to be declared whether I was right or wrong.

I have been very long, and you as patient. I thank you.

WERNERSVILLE ASYLUM. HOW NEARLY TWO HUNDRED LUNATICS LIVED LAST SUMMER.

FROM THE PHILADELPHIA "PUBLIC LEDGER," DEC. 26, 1893.

THOSE WHO have seen hundreds of lunatics with nothing to do, sitting day after day in the same corridors of the hospitals in which they are confined, with the same faces about them, can easily understand that no amount of medical attention could better their mental condition as well as occupation. This, and the experiments carried on in a small way in the various hospitals, led the State authorities to determine on the establishment of a large industrial institution exclusively for the treatment of the chronic insane.

THE SITE OF THE ASYLUM.

Wernersville, the site chosen, was most happy. Scarcely a more charming or healthful location could have been selected. For years this lovely mountain resort has been celebrated for its scenery, the bracing nature of its air, the purity of its drinking water, and for the comparative absence throughout the year of the pestiferous mosquito.

At this place, on the line of the Lebanon Valley Railroad, the State purchased three farms, aggregating 518 acres. On rolling ground, with splendid orchards of ancient apples and huge groves of venerable oaks and other trees, the new possession is in itself enticing, but with its surroundings is unexcelled in the Commonwealth. Back of the grounds are the picturesque South Mountain range, their rounded summits and steep sides richly clothed by deciduous trees. In front the Lebanon Valley lies like a beautiful map, stretching far to the westward and marked with rich farms, and some twenty miles to the northward to the base of the Blue Mountains, appropriately named from the delicate blue haze which envelopes them.

On the side of a sugar-loaf shaped hill in the rear, a clear mountain stream has its rise, from whence it rushes pell-mell through a narrow, picturesque valley—a part of the asylum grounds—to join other waters that empty finally into the Schuylkill. This stream is called by the people who live thereabouts, the Whisco Nisco creek, probably a corruption of Wiconisco, and it is estimated that upward of a million gallons of water flow daily over its course. Through the pretty valley and along the dancing stream, there is an ideal country road, fringed with bushes, and, in summer, with wild flowers, and overhung by the trees of the mountain side. Winding and narrow, rivalling the stream and landscape in beauty, it takes its way through the South Mountain range to the Lebanon Valley Railroad, where a station has been erected for the accommodation of the asylum visitors.

LUNATICS ROUGHING IT.

As soon as possible after the State came into possession of the three properties, the erection of the splendid buildings now nearly completed, was begun. But although these were pushed as rapidly as possible, they did not progress as fast as the hearts of those bound up in the welfare of the chronic insane desired, and a bold and successful attempt was made to establish patients in temporary quarters on the grounds, and the ingenuity displayed in doing this was as creditable as it was wonderful.

On one of the properties purchased was a large stone farm-house, built eighty-six years ago, with low ceilings, wide halls, and full of windows and corner closets and with many doors, the designs and carvings of which carry one back to pre-Revolutionary days. A few hundred yards away, on the Whisco Nisco creek, stood another, though smaller stone dwelling, over which grapevines grew in wild profusion, a good frame barn and a large three-story trimmed stone grist mill. Intelligent eyes immediately saw how these and other things about might be utilized to further the humane scheme. Some changes were made in the large stone house; a few partitions were torn down; a large, rough enclosed shed built against the rear where a ramshackle porch had stood; a temporary outkitchen of frame was constructed, and then one hundred female chronic insane were drafted from the five State hospitals and installed.

While these changes were being made in this building, workmen were making alterations to the grist mill and the large barn on the Whisco Nisco. In the former, the machinery occupied the rear half of all three stories. Rough board partitions were soon run up in front, and there were at once three commodious rooms. The barn was given a good cleaning, what cracks there were in the side were covered, and two more comfortable dormitories were created. In the mill and the barn about one hundred male insane patients were quartered, where they speedily made themselves at home.

But this was but the beginning of a marvellous change, not only in the place, but in the patients themselves, in which was plainly demonstrated the wisdom of the work and of the State in establishing it. As one of the fundamental principles of this new asylum was that the patients should labor, they were given employment as soon as fairly installed. There was much to do, and it is creditable to the character of those who have the institution in charge that the patients worked with a will, and it was evident that coercion was unnecessary. Everywhere cheerfulness was visible, and whenever an attendant, or a physician came among them, they were saluted by the lunatics, not only with words of goodwill, but almost invariably of affection. About the stone house given over to the female insane, were a number of small structures of a miscellaneous character common to old farm-houses. Some of them were torn down, and with the lumber and about \$2.50 worth of nails, the lunatics, it is stated, at the suggestion of one of their number, constructed a covered passage way between the male and female quarters, a rough looking concern, it is true, but very acceptable in rainy weather. One of the structures not razed was an old blacksmith-shop, a foot or more of grimy coal dust and dirt was on the floor, soot and dust begrimed the walls and ceiling. Male lunatics cleared away the floors, and females scrubbed and white-washed the walls and ceilings. Some benches were put in, and the place was transformed into an ironing-room of a laundry as neat and serviceable as could be desired. Close beside this old blacksmith-shop was a dilapidated outdoor fireplace, where the farmer's wife, in years gone by, hung a great black iron kettle for wash-day work. A little repairing, a shed of rough boards constructed about it, and the wash-room of the laundry was ready.

A COUNTRY-STORE.

Then a temporary frame shed was built close to the rear of the old stone farm-house in which to store provisions, and any one who entered it could feel that it was a perfect reproduction of an old-fashioned country store. It only needed a scrawling sign, "post-office," over the desk and a huge stove in the centre, and a few lounging farmers about to make the illusion complete. The goods were there in seemingly endless variety, the pleasant composite odors, which only a country store gives forth, were there also. Here, too, was the inevitable second-story, with great strings of cheap army shoes hanging from the beams, and huge rolls and piles of cheap calico and muslin on large plain shelves.

A large vault deep under the ground, with smooth stone steps leading to the cool depths, "grandmother's mystery," as the boys lucky enough to have grandmothers who were farmers' wives, called it—a place in which in lieu of spring houses, milk and butter were stored to keep sweet, is close beside the house.

FROM PIG PEN TO BATH ROOM.

Thus nothing was wanted, even a huge pig pen beside the mill where the men are, was made use of. This building was once, it is said, a small saw-mill. It was a roof-covered structure, as large as a small house, but only one story high. At first the place seemed useless. It was malodorous and filthy, and it was almost decided to tear it down, when a brilliant thought saved it. Willing lunatics were set to work. The filthy soil inside was dug out for a depth of two or three feet and filled in with clean, sweet soil. The walls were thoroughly cleansed and disinfected, a cement floor put down, windows neatly curtained, a bench put in extending the whole length of the building, three huge tubs, each separated by screens of cretonne, hot and cold water introduced, and the pig pen was transformed into a large, comfortable and attractive bath-room.

LABORING PATIENTS.

Each of the three farms comprising the asylum grounds, after the manner of all good farms, have attached to them a large apple orchard. These during the summer were favorite resorts of the lunatics during leisure moments, and a few of them who had been on

farms before, and whose affliction had not driven from them recollections of uses to which apples may be put, manufactured a huge cider-press, and made barrel after barrel of apple vinegar, not forgetting the charcoal to aid in perfecting the condiment.

From the Whisco Nisco creek, the water supply for the institution is obtained. So great is the fall from the stream, that by simply laying pipes in the stream half a mile or so above the buildings, the gravity flow is quite sufficient to carry the water to the top story of the highest structure. Partly as a precautionary measure, however, it was decided to impound a quantity of the water near the old stone mill, and a large reservoir has accordingly been built, all of which has been the work of the lunatics during the past summer.

To a chance visitor, when all these things were going on, it would seem as though the lunatics were given unrestricted freedom; that it would be an easy thing for them to wander away, or make their escape. But while few care to make any attempt to leave the institution, should one do so, the visitor would speedily see that the unrestricted freedom was a delusion and a sham, and that nearly every movement of the mind-beclouded patients is being constantly watched by alert-eyed attendants.

The new asylum is very dear to the heart of Governor Pattison; all that has been done since the beginning of the work at Wernersville, has been watched by him with the greatest interest, and the farm life of the patients during the past summer has been very attractive to him, and the evident improvement of their mental condition thereby has confirmed him in the good opinion he had previously formed of the system. One of his strongest expressed wishes at one of his later visits was that in the improvements which are being made so rapidly, the rustic simplicity of the place be preserved as far as possible. Those who have witnessed the evident pleasure of the poor mind-stricken creatures in their rural roughing it last summer, and the picturesque features of the country, must echo that wish.

BONIFACIUS.

LETTERS FROM PHYSICIANS.

FROM DR. J. S. BILLINGS.

Washington, D. C., January 20, 1894.

Dear Doctor :

In accordance with my promise, I send the following replies to your queries:

I. I do not think the present asylum management of the insane in America is as good as it might be.

II. My objections to it are:

1. In most of the large State asylums for the insane the means of caring for those forms of insanity which are susceptible of improvement by treatment, probably do not produce as good results as those employed in private asylums, or by specialists, for persons able to pay for such superior treatment. This is merely an opinion, based on knowledge of some special cases. There are no statistical data on this point.

2. These asylums have contributed very little to advancement in knowledge as to the causes, pathology and best treatment of the various forms of insanity in view of the opportunities which their officers have had, and as compared with the results obtained in asylums in Europe. The causes of this appear to me to have been:

1. That the officials of such asylums obtain and hold their positions, in a large majority of cases, through political influence, and without reference to their qualifications as experts in the treatment of insanity. This does not apply to the asylums not under State or Government control.

2. That the energies of the well-qualified asylum superintendents have been heretofore largely directed towards increased accommodation for the insane, and that their duties as administrative officers, charged with the planning and erection of new building and with the details of asylum management, have left them little time or opportunity for scientific investigations, or for making themselves acquainted with what has been done by others in the diagnosis and treatment of insanity.

3. To insufficient appropriations for the support of

asylums, making it impossible to obtain a sufficient number of such skilled and trained attendants as are necessary to secure the best results by individualizing the treatment.

III. In reply to your third question, I would say that I would wish that the position of superintendent of an asylum for the insane should be entirely independent of politics and politicians, and that the best man for the place should be appointed, regardless of whether he is a resident of the State or not. This might be done through the United States Civil Service Commission.

I would have the superintendent a medical man, but the treatment of the cases and the scientific work of the institution should be in other hands. I would separate, as far as possible, the hopelessly incurable cases from those which might be expected to yield good results to treatment, and concentrate upon these last the expenditure for experts, skilled nurses, and for special appliances and comforts.

I would provide greater facilities and inducements than now exist to have well-educated, young medical men employed as assistants in the clinical work of asylums.

For asylums near large cities, I would have a consulting staff of physicians, *i. e.*, specialists.

Yours respectfully,

J. S. BILLINGS.

FROM DR. C. L. DANA.

New York, February 9, 1894.

Dear Dr. Mitchell:

With reference to your inquiries regarding the management of insane asylums in America, I should say, "No" to your first question, but then nothing is quite perfect and a negative answer means little.

The special defects vary greatly in different States, and something must be considered and allowed for new social organizations and a busy and a not very wealthy population. I refer now especially to many southern and western institutions.

I believe that all over the country the great trouble is that the people do not understand what a difficult, costly and important problem the care of the insane is. Hence comes the evil of political management and as a result

the necessity of doing things economically and yet of taking care of the "boys."

In States like New York, where there is long experience, and a wealthy State behind the asylums there is less excuse for deficiency in management.

I will only state the points which most impress me:

There is great lack of sound psychological knowledge, an utter deficiency in knowledge of cerebro-spinal anatomy and physiology and a most dead and hopeless attitude therapeutically towards the patients. Furthermore, there is no thorough knowledge of nerve pathology among asylum alienists. I think that an alienist who is at all a qualified man should be a fair neurologist and pathologist, should know modern psychology and should be a hopeful therapist.

Isn't this a large enough indictment? To it, however, the answer may be justly made that asylum managers do not pay enough to secure such men. I should add that there are a number of asylum men who do possess the requirements which are so generally lacking.

Yours truly,

CHARLES L. DANA.

FROM DR. F. X. DERCUM.

January 27, 1894.

Dear Doctor Mitchell:

Your letter in reference to hospitals for the insane has suggested the following thoughts to me:

First, in relation to attendants. Attendants, especially those in State and other public hospitals, are not recruited from a very high class of men and women. When we reflect upon the pecuniary inducement that is offered (about \$19 a month) we can not be surprised to find this the case. It is to be wondered at that anyone should for such pay be willing to discharge duties, exacting, onerous and often exceedingly unpleasant. Surely if any position requires qualities of a high order, gentleness, tact, good judgment, firmness, courage, and above all self-control, it is that of asylum attendant. Again, little or no systematic effort is made to train men and women for the duties of such positions. Nothing comparable to a nurses' training school exists, to my knowledge, in any of the insane hospitals. I know of none in

which a systematic course of lectures, or any other technical instruction is given to attendants. Surely attendants should be taught some of the elementary principles of nursing, should be taught in what manner to deal with the insane,—how to deal with the delusional lunatic, how to handle a case of mania or of melancholia. Of course, such points as relate to holding and feeding they learn by practical experience, but it is often at the expense of their patients. Further, the number of patients assigned to an attendant in an insane asylum has always seemed to me to be excessively large. If my recollection serves me right, the proportion is generally one attendant to eighteen or twenty patients. A few insane asylums that happen to be attached to other hospitals, such as the one attached to the Boston General Hospital, have the benefit, incidentally, of trained nursing. This was the case also for a time in the insane department of the Philadelphia Hospital; in the latter, however, the nurses were admitted to the female department only.

Secondly, in relation to remedial measures. In addition to the seclusion, the isolation, or the proper grouping of patients, and the efforts that have been made in various hospitals to introduce occupations and amusements for the insane, various other remedial measures might be carried out. It has always seemed to me that hydrotherapy might find some application in hospitals for the insane. It is a comparatively inexpensive method of treatment and of its calmative and tonic effect there can be no question. Indeed, the simple substitution of rain or shower-baths for the full bath system, now in vogue, would be a distinct gain. The shower-bath offers in a modified way much that can be otherwise gained only by massage. The bath might be so arranged as to yield every advantage of hydrotherapy. The jet, fan and needle douches could easily be applied. Further, it is absolutely without danger. It would not be possible for a patient to drown in a shower-bath. Again, I have no doubt it would also save time where the attendants have many patients to bathe.

It has also seemed to me that every hospital for the insane ought to have attached to it a number of masseurs, or, at least, a number of attendants able to give massage. There can be no doubt that in some of the curable insanities, especially such as are associated with great depression of nutrition, massage would be of value. Further, although we are well aware that the "rest-cure"

is not of itself successful in treating insanity there can be no doubt that there is abundant opportunity in insane asylums for the advantageous application of its principles.

A distinct advance has been made in some of our State hospitals in the setting aside of certain wards or buildings as infirmaries. In this connection it has also suggested itself to me that the detailed medical work required is in excess by far of the number of physicians usually attached to one hospital. This is not said in a spirit of criticism of the work as done, but there can be no doubt that greater good could be accomplished if the patients of an asylum could get more of the individual attention of the physician. Surely a percentage of the insanities are curable and every effort should be made to save this percentage. No matter how great the skill, how exalted the purpose, how sincere the devotion of the asylum physician may be, it is self-evident that it is impossible for him to give detailed attention to hundreds of patients in a day.

Finally, much might be said in the matter of occupation and of out-door life for the insane. Occupation should be prescribed for the patient just as any other remedial measure and should be extended to all who are physically capable. As much as possible, the season permitting, this occupation should be out of doors. It has seemed to me that the principle already applied in farms for the epileptics should find a more extended application in farms for the insane.

I am well aware that some of the beneficial measures which could be added to the asylums might increase the cost of maintaining the insane. If the latter are simply to be maintained in huge board-houses, or dormitories, and their isolation from the community be the only object, then, of course, the question of cost should be paramount. But if the institutions are to be run upon the basis of hospitals—are to be managed as institutions for treatment—certainly the question of increased cost should find no place in the minds of those who determine the use of the public monies.

Yours very sincerely,

F. X. DERCUM.

FROM DR. W. H. DRAPER.

New York, April 6th, 1894.

Dear Dr. Mitchell:

I have been for many years impressed with the conspicuous defects of the "asylum management of the insane" in this country.

This impression has been gained from my personal experience of the treatment of insane patients in whom I have been professionally interested, and from my knowledge of the methods and management of asylums which I have visited.

I have also observed the fact, which must be familiar to all who regard the progress of the pathology and therapeutics of mental diseases, that while the opportunities in this country for the study of these diseases are so vast, the contributions to the science of psychiatry are meagre, when compared to those of Great Britain and the continent of Europe. The contrast in this respect is painful to contemplate, and must be the direct consequence of the defective administration of our system of asylum management.

In reply to your first question, then, I would say that the asylum management of the insane in this country is not only not as good as it could be made, but that it is not as good as it should be made without delay, if we are not willing to remain longer under the odium of being far behind our contemporaries in Europe in the science and treatment of diseases of the mind.

In reply to your second question, "What faults do you find with our asylum management?" I would suggest that they are such faults as naturally arise from the fact that our asylums are still constructed and administered on the old idea that their main object is to provide safe and secure retreat for lunatics, and they are not organized in accordance with the demands of modern mental pathology, as hospitals for the scientific investigation and treatment of the functional and structural diseases of the brain.

The majority of our public asylums are conducted upon this principle of providing safe and secure retreats, and those which are under the management of private corporations owe their superiority chiefly to their more hygienic and luxurious accommodations. The fault in their construction is a most serious one, since it is incompatible with a proper classification of patients based

upon a differentiation of the varied forms of insanity and the regulation of their environment. The most important considerations in this respect are sacrificed to architectural effects and economical administration. Many of our asylums appear to be controlled by managers who are either ignorant or defiant of scientific progress in the care and treatment of the insane, and they are administered by superintendents who, with the best intentions, and often with high qualifications for their purely professional work, are hampered by the pressure of executive duties and compelled to slight or neglect the scientific investigation and treatment of the patients confided to their care.

In reply to your third question, I would suggest that reform is needed, in the first place, in the construction and arrangement of hospital buildings for the accommodation and treatment of the insane, in order to meet the requirements of modern science. Detached buildings should supersede the erection of large and costly structures in which it is impossible to classify and vary the environment of different forms of insanity.

Reform, also, is needed in the administration of our asylums, which should provide a separate organization for carrying on the executive and medical departments.

The medical department should be organized on the plan practiced in our best medical and surgical hospitals with a competent resident staff and a board of attending and consulting physicians chosen from those whose special training and experience fit them for such positions.

These are the lines upon which I believe reforms in the present management of asylums for the insane should be made.

Yours very truly,
W. H. DRAPER.

FROM DR. J. T. ESKRIDGE.

Denver, Col., February 19, 1894.

Dear Dr. Mitchell:

I received your circular letter relative to the care and management of the insane a few weeks ago, and will endeavor to answer briefly each of the questions submitted.

"Do you think the present asylum management of the insane in America as good as it could be made?"

No.

"What faults do you find with it?"

1. The buildings are too large, and constructed with an eye to architectural beauty and massiveness rather than to the comfort and welfare of the unfortunate insane.

2. Patients are not thoroughly classified according to the disease. The medical superintendent has too much to look after.

3. There is no staff of visiting physicians and specialists as in other well-regulated hospitals.

4. Insufficient record of the patient's history, family and personal, with account of physical and mental condition, is kept, except, perhaps, in rare instances,

5. Too little attention is paid to pathological work.

"If you had full freedom to change it, what would you do?"

1. I would have all additions to existing asylums and all new insane asylums built on the cottage plan at a convenient place, so that each building could be surrounded by plenty of grounds.

2. I would insist on a thorough classification of patients, in so far as it is practicable and possible.

3. I should endeavor to have an insane asylum managed on the same principle that all well-regulated hospitals are conducted, including a medical superintendent, a sufficient number of medical students and a well-selected staff of visiting physicians.

4. I would insist upon full records of histories, with full account of examination of patients from time to time.

5. I should insist upon autopsies followed by microscopic examinations in all cases, from a study of which further light might be expected on the etiology and pathology of insanity.

Yours truly,

J. T. ESKRIDGE.

FROM DR. C. F. FOLSOM.

Boston, Mass.

Dear Dr. Mitchell:

As to insane asylums the first question is already answered "No."

Second. Isolation from contact, constant, with the medical profession; insufficient salaries for the medical heads of the asylums; overgrowth and swamping of the

medical officers with a multiplicity of details of the business of the institution; affiliation with politics; appointments through politics and necessity of "managing" the politicians. These evils, of course, vary in extent in different asylums, but apply in some degree in most and to a very great degree in many. As a result of these difficulties, too little time for purely medical work and an increasing disinclination for it. In face of such tremendous obstacles it is only fair to say that what men like Godding and some others have accomplished is simply amazing.

Third. Discard the name asylum and substitute hospital; give up the term lunatic altogether. Have moderate sized hospitals not remote from medical centres for the curable insane, and inexpensive buildings and a farm for the chronic; the latter to be seen once or twice a week by the head of the hospital. Salary of \$10,000 for the heads of such hospitals as Bloomingdale and the Pennsylvania, and increased beyond the present limit in the State hospitals as much as can be got. Take the burden of business details and politics off the shoulders of the medical men. Establish medical clubs and training schools for nurses and bring in as much as possible consultants, including pathologists, from the outside.

I should like to see the experiment tried of a hospital for the curable insane managed by a small staff of visiting physicians.

Very sincerely yours,

C. F. FOLSOM.

FROM DR. LANDON CARTER GRAY.

New York City, January 18, 1894.

My Dear Doctor :

In response to your question as to whether I consider the present asylum management of the insane in America as good as it could be made, I answer emphatically, "No."

In reply to your second query as to what faults I find with it, I would say in brief, that there is not a proper system of selection of the assistants, not enough attention paid to the medical aspects of the treatment of the insane, too much attention bestowed upon the mere housing and feeding of them, that the salaries are also too small, the positions too insecure, and that the chances

of steady or merited promotion are too uncertain, to obtain the best class of medical men.

Your last interrogatory (as to what I would do with the whole system if I had the power to change the asylum management of the insane) involves much fuller consideration, and it would only be possible for me to outline a mere sketch of what I should want to do, subject to modifications of place and circumstances. In the main, I believe that,

1. There should be a competitive examination of all applicants.

2. The lines of promotion should be definitely settled by law.

3. The asylums should be brought nearer to the large centres of medical teaching, so that they can be utilized for that purpose, and at the same time supply adequate stimuli for the study of mental diseases.

4. The salaries should be raised so as to make the position of an asylum superintendent worth so much that a man of eminence could afford to hold it.

5. The position should be held for life, or during good behavior, as in the army or navy.

6. Some way should be devised by which the physicians can devote a proper amount of time to the study of their cases from the standpoint of the physician and not of the hotel-keeper.

Yours very truly,

LONDON CARTER GRAY.

FROM DR. ALLAN M'LANE HAMILTON.

New York, February 12, 1894.

My Dear Dr. Mitchell:

In answer to your note of the 6th, I would say that my experience with the intimate management of insane asylums is limited; yet, I know enough about them to feel that their shortcomings are usually due to the interference of injudicious outside individuals, or the parsimony of local authorities, who never seem to get rid of the idea that persons mentally afflicted belong to the class of paupers or to the permanently disabled, who are to be put out of sight and supported as cheaply as possible. I have been for several years an advocate of the educational system in vogue at Dublin, and introduced at first in this country at the Hudson

River State Hospital. I have seen the good effects of such occupation and mental stimulus, and think it should be everywhere adopted. As you must know, mental exercise is important for the insane, and systematic application wherever incorporated has had its good effect. I believe all asylums would be better if they were detached, and smaller buildings and more of them. I believe every asylum should have a pathological laboratory and training school for nurses, and I am glad to see the adoption of these departments by certain progressive institutions.

If you will use your influence to antagonize the entering of politics into the management of the insane, you will help the superintendents in their work more than you can imagine.

In this State we are suffering from an incubus in the shape of an inefficient and overbearing commission, closely allied to doubtful political parties who, unfortunately, in a measure, have secured the support of certain party organs, and some medical men, who are at best but ill-informed as to their doings.

Very truly yours,
ALLAN McLANE HAMILTON.

FROM DR. A. JACOBI.

April, 12, 1894.

Dear Doctor :

I beg to apologize for not writing before, but I had nothing to say that was worth while. Nor have I to-day. I cannot give particulars, no dates, no names, that would be of any importance, only general impressions, which, however, are all based on facts. One fact which I believe can be substantiated is that our insane asylums have contributed very little to psychology or psychopathology. The plea of the youth of the country and of our institutions is not valid, for the whole doctrine is young, both here and in Europe. The actual fact is that our asylums have always been more or less gentle and genteel prisons for the mentally sick rather than hospitals. Recoveries are plentiful in our statistics. From them and from my own experience I know that the same person recovered four or six times from what was styled "acute mania." When I asked in several institutions for histories there were none; date of admis-

sion and almost nothing else; in many instances nothing else. Anatomical diagnosis was seldom, if ever, made. I know of a number of cases that died in institutions after years. Post mortem examinations had not been made, nor had they been asked for. The same thing in many instances. No histories, no diagnosis, no treatment, autopsy; only safe keeping and board regularly paid.

I know of a few men connected with this one institution who are away above the average. But they, I believe, will be the first and most anxious to admit that what I submit is correct. Further, deponent sayeth not.

Very sincerely your friend,

A. JACOBI.

FROM DR. ALFRED H. LOOMIS.

New York, February 9, 1894.

Dear Dr. Mitchell:

In reply to your letter, I do not think the present management of asylums in America as good as it can be made, (1) because asylum management, especially in the State of New York, is largely under political control, and the State Commissioners who are immediately responsible for their management receive their appointment on a political basis, rather than for their professional standing. In New York State the same methods are being introduced into their management as were heretofore in vogue in the county poor houses. No attempts are made to treat the insane according to the scientific advancements of the present day.

If I had the power to change it, I would have State Commissions composed of men having the largest amount of scientific and practical knowledge of mental diseases. I would give such a Commission absolute power of the appointment of the medical heads of all asylums, and such officers should be selected only on the basis of their professional attainments and executive ability, and their salaries should be liberal; they should have the power of appointing their medical and non-medical assistants. The asylums should be divided into two classes, one for the treatment of acute cases and the other for chronic ones. Each asylum should be equipped with laboratories and appliances for the advanced study and treatment of mental diseases.

ALFRED H. LOOMIS.

FROM DR. GRÆME M. HAMMOND.

New York, February 21, 1894.

Dear Doctor Mitchell:

I do not think the present asylum management as good as it could be made. The principal fault is that the superintendent is required to assume duties which must necessarily interfere with what should be part of a superintendent's work; that is, scientific investigation. The directors of an asylum require the superintendent to be a business man of good executive ability. His medical qualifications are often of secondary importance. He is the business manager of the hospital first, and the medical directorship is secondary in importance.

A director of one of our large asylums told me recently that the present superintendent was the best the institution had ever had. Under his management the expenses had been greatly reduced; not a word was said in his praise as an alienist. Perhaps it is by reason of this double role, financier and alienist, which the superintendent had to play, that he, who has such unexceptional facilities for original research, does so little. It is indeed rare for asylum superintendents to make any discoveries, or to institute research relative to the morbid anatomy and pathology of the various forms of chronic insanity about which so little is known, and in which the field for study is so infinite. Thousands of opportunities for study are given our superintendents every year by the macroscopic and microscopic examination of the brains of the insane who die. They have great opportunities for study, and the advancement of our knowledge of insanity would be much more rapid if our superintendent's composition contained more of the scientific and less of the business manager.

If I had full freedom to change the condition of affairs, I would not allow the superintendent to have any voice in the business management of the hospital. He should be an alienist and nothing else. I would compel every insane asylum to have a laboratory fully equipped with every facility for the scientific investigation of insanity, and I would make it obligatory for the superintendent to see that every brain that could be obtained, was properly studied and recorded, and the records kept, and that once a year he should publish the results of his work. In this way, if the work were prop-

erly performed, a great deal of light could be thrown upon an obscure subject, and asylum superintendents would occupy a more enviable position in the scientific world than they do at present.

Very truly yours,

GRÈME M. HAMMOND.

FROM DR. HENRY M. LYMAN.

Chicago, Ill., February 9, 1894.

Dear Dr. Mitchell:

In reply to your note of the 6th instant regarding the "present asylum management of the insane in America," I feel free to say that I do not think it is as good as it could be made in our public asylums. Speaking for such public institutions as have come under my notice in this part of the country, the principal fault that I find with the management is the lack of skilled medical attendance. The superintendent is too often a political doctor who has secured this position through the arts that are familiar to politicians. Having obtained a superintendency, much of his time is occupied in the effort to retain it. The size of the institution under his care renders it necessary for him to devote the greater part of his time and strength to the domestic affairs of the establishment, so that he soon finds himself practically reduced to the position of keeper of a boarding house for a thousand or fifteen hundred people whom he scarcely knows by sight. The medical care of the patient must necessarily be greatly neglected, or chiefly relegated to the assistant physicians. Of these the number is usually too small; for legislative committees and other supervisory bodies find it easier to economize in the matter of medical attendance, than in any other department. The superintendent is compelled to acquiesce in these views in order to secure his own position. For the same reason he finds it expedient to respect the opinions of numerous politicians whenever a nurse, a cook, an engineer, or a scrub-woman is to be appointed or discharged. Much remains to be desired in the selection of the assistant physicians. While politics probably exert less influence in this department of choice than in any other, there is very little reference to superior qualifications in this selection. I have not heard of competitive examinations in such

selections. The appointee is usually a recent graduate who could not hope to obtain a competitive position in an urban hospital; or he may be a young doctor who has reason to be dissatisfied with private practice, but is so fortunate as to be a friend of the superintendent, or of one of his friends. Placed in charge of one or two hundred patients, under a superintendent who is himself, perhaps, just rotated into office, the young man is thrown upon his own resources with a very slender knowledge of general medical practice, and with little or no help from his superior officer. In many instances the position of assistant physician has been accepted, *faute de mieux*, only with a view to saving enough from the slender salary to enable the incumbent to obtain a better place in civil life. After a few years of this sort of thing, the young man leaves his uncongenial charge and migrates to the metropolis to set himself up as an alien expert; or, he succeeds in securing sufficient influence with the asylum ring and obtains a superintendency for himself elsewhere; or he gradually sinks into the routine of an asylum drudge, with no ambition beyond such comfort as the asylum may afford.

The consequence of this system is apparent in the fact that, with comparatively few exceptions, the medical staff of our insane hospitals contain too many young men, who know very little of medicine and surgery, and who have neither the time nor the ambition to acquire a scientific knowledge of insanity.

If "I had full freedom to change the present system," I would divorce it from politics. I would relieve the superintendent from many of his political, financial, and economical duties. I would require him to be an active physician and leader among his assistants and patients. I would supply adequate means for scientific research and would provide for their publication, so that the medical fraternity might estimate the amount and the kind of work that is being done. I would establish competitive examinations, like those for the military and naval service, as a means of selection of assistant physicians. I would not overburden them with patients beyond their ability. I would pay them enough to make the position of an assistant in an asylum desirable as a permanent and honorable office during life, as much so as a corresponding place in the army or the navy.

Finally, I would have a commission in each State, which would adequately represent the medical profes-

sion, as well as other callings, and I would have that commission supervise the medical staff of each hospital, making periodical investigations of the physical, intellectual, moral and scientific characters of every member of the staff. In some such way, I think, we might infuse a little more life into the present semi-animate system.

Truly yours,

HENRY M. LYMAN.

FROM DR. J. HENDRIE LLOYD.

Philadelphia, January 15, 1894.

Dear Dr. Mitchell:

I think that our American asylums, as a class, are lacking in detailed clinical and pathological work. There are some exceptions, but the rule in the main holds good. It is not always the fault of the physicians, but rather, sometimes, the fault of custom and lack of proper facilities and training. Too much attention is required and given to administrative routine. Moreover, the salaries are often small, and the inducements for thoroughly equipped young men to enter the service of the asylums as a life work are very slight. This, I think, is one of the greatest drawbacks our asylums have to contend with.

In this connection I think I cannot do better than to call your attention to the movement begun at Elwyn, at the Pennsylvania Institute for Feeble-Minded Children, for improving the scientific work to be done at that asylum. It offers, as you doubtless know, wonderful opportunity for such scientific work, but in the past has been but little utilized.

Your very truly,

J. HENDRIE LLOYD.

FROM DR. CHARLES K. MILLS.

Philadelphia, February 8, 1894.

Dear Dr. Mitchell:

The present asylum management in America is not as good as it could be made, although my personal knowledge is chiefly with reference to a few institutions, which on the whole are well administered, and such faults as I have observed in them are largely dependent upon a lack of sufficient public or private sup-

port. I can best enumerate what appear to me to be shortcomings, particularly of large public institutions, by stating briefly some things which I believe should be done.

The medical staffs should be enlarged. Individualization in study and treatment should be more thorough. The physicians should be relieved from much executive and miscellaneous non-medical work, to which they are now compelled to give too much valuable time. Consultants with regular duties should be appointed wherever it is possible to secure physicians of ability who are interested in insanity. Scientific work should be encouraged and urged. Good pathologists, with laboratories and all appliances, should be well-salaried officers in all large institutions. Regular, systematic instruction should be given to nurses and attendants by means of lectures and practical demonstrations. Nurses and attendants should be much better paid. The patients should have more occupation, amusement and instruction. The criminal insane should be placed in special institutions; and a better separation of acute and chronic cases should be had.

Very truly yours,

CHAS. K. MILLS.

FROM DR. WILLIAM OSLER.

Baltimore, January 15, 1894.

Dear Dr. Mitchell:

The needs are:

1. Emancipation from politics.
2. The separation of executive and professional functions.
3. A staff of assistants trained in modern psychological and pathological methods.

Sincerely yours,

WM. OSLER.

FROM DR. JAMES J. PUTNAM.

Boston, February 5, 1894.

Dear Dr. Mitchell:

My views on asylum management, which, perhaps, a more intimate knowledge of the data would modify, are as follows:

1. In many asylums the custom still prevails, I think,

of imposing an immense amount of purely routine work upon the superintendent, such as writing letters to friends of the patients, ordering coal, and attending to house repairs.

The evils of this system are best seen by looking back for a generation or two, when the present arrangements obtained in a more aggravated form, and, then, looking across the water, to the best of the German asylums. It was not supposed, I imagine, by the trustees of the earlier American asylums, or by the medical profession of that day, that anything of real importance could be gained by making the insane patient the subject of close, scientific study. Kindness and good discipline were about all that was desired for the patients, and it was only natural that, in looking for a superintendent, good administrative ability should have been rated as high as scientific training. This view of the qualifications desirable for a good superintendent has been changed to the extent that the need of additional assistants is generally admitted, but not to the extent of recognizing that there was something radically wrong in the older conception of the superintendent's functions.

It is possible,—indeed probable,—that there is something of value in the present "family system" of asylum management, with the superintendent as the paternal head, taking part in dances and conducting entertainments. But if one stops to think of the matter for a moment, it becomes plain that the man who is to make a success in the most difficult of medical specialties ought to have no time for these things, and there are some places in Europe where this is recognized.

Again, not only are the time and energies of the superintendent, under the old system, taken up by non-medical duties, but, what is worse, this system offers no temptation for men of real genius to enter the field. Such a man wishes to live in an atmosphere of scientific thought and inquiry. He should be a psychologist of the first order, and a scientific physician of the first order as well. In order to keep himself fitted to his work, he should be in the way of meeting other men of varied talents and interests, both socially and at scientific meetings, in order that he should feel the healthy stimulus of example and criticism.

I do not believe that these conditions will ever be really fulfilled until the office of superintendent is divided. There should be a non-medical supervisor

living in the asylum, but the physician should live outside and make visits as often as is necessary. It would be better to have a first-rate man, an enthusiast for his work, living in the changing air of a cultivated society outside, make a visit once a week, than to have an equally good man always on hand and liable, for that very reason, to find his freshness suffering by stagnation.

2. I think the medical head of the asylum, as well as the assistants, should be paid, even if they do live outside. I think, in fact, that this ought to be done as regards the medical officers of all hospitals, even though it is possible to get good men without doing so. We want high grade men for these places and we ought to offer them high grade prizes.

3. It is needless to say that I think the medical head of an asylum should have as many and as good assistants as he can utilize. Let anyone follow for a day or two the assistants in any of our best hospitals of the present day, with their busy life of chemical and microscopical work, and let him imagine the same habits and energy transferred to asylums, and he will admit without argument that the community would be greatly the gainer.

4. I think that when new asylums are in contemplation, they should not be built so far from a large city that they cannot be used for clinical instruction, nor easily visited by physicians living in town. Contrary to a common belief it is probably true that patients who are the most lectured upon and written about are the best treated.

5. When the hospital is large it seems to me that it would be well to have at least two physicians of equal rank associated in the management of it. It is a good thing to have a certain amount of medical dictatorship, but it is a bad thing to have too much of it, if that means running the danger of getting slack from lack of stimulus and competition, or from excess of material which cannot be worked up.

Yours truly,

JAMES J. PUTNAM.

FROM DR. MORTON PRINCE.

Boston, January 18, 1894.

My Dear Dr. Mitchell:

I would premise my answer to your questions by saying that the criticisms which I

shall make upon asylum management are based upon a personal investigation of the principal asylums in this State. As a member of an official committee appointed by the Mayor not long ago for the purpose, I would say, however, that my criticisms only properly refer to the asylums of this State, as I have no personal knowledge of others outside, and are only applicable to other institutions in so far as Massachusetts asylums may be fairly considered representative of those in the country at large. You are at liberty to quote me if you so desire.

Question 1; Answer: I do not think the present asylum management of the insane as good as it could be made.

Question 2; Answer: The principal fault that I find with it is the little provision that is made for the employment and occupation of the time of the inmates. In the course of my inspection I found in all asylums large numbers of inmates sitting around doing nothing, confined frequently day after day in closed rooms with nothing to do.

Of course, I do not refer to such extreme cases as mania and advanced dementia, which would render such patients incapable of being employed, but there were large numbers of patients who were capable of doing something, and yet there was no occupation for them. In all asylums there were, of course, some who were kept occupied doing work about the house and working out of doors, but this number was small. At most the patients to whom I refer were allowed to go out of doors in good weather for a few hours a day, but in wet weather, and especially in the winter they were often confined for days at a time in the large sitting-rooms with nothing to do.

Furthermore, it seems to me that the recreation rooms were in general too small for the numbers confined in the asylums, all of which were over-crowded; and I would say here, in parenthesis, that over-crowding is an evil of all our asylums.

I am satisfied from my own observations and conversations with the superintendents that far more patients could be given employment than is now the case. In some asylums this has been successfully done. In Kanakakee manual labor has been introduced, I learn, with success, but it could be probably further extended.

At the Bridgewater asylum of this State chair-making

and other light employments have been successfully introduced. It seems to me that work-rooms for manual occupation of light kind, such as chair-making, broom-making, etc., should be attached to all asylums which are not restricted to the richer class.

From my inquiries of those in charge I was not able to obtain satisfactory answers as to why such work-rooms were not provided, excepting the inertia and conservatism of those in charge and the lack of funds for the purpose. I am certain, however, that if it were recognized that employment of this kind were essential and requisite for the proper management of the insane the funds would be forthcoming and that no asylum would be built without them any more than without a water supply. Putting aside the question of the benefits to the insane people of such employment, I think there is a certain inhumanity in confining people for long periods of time without giving them proper occupation.

I cannot help thinking that in accordance with psychological law superintendents become callous to seeing patients confined in large numbers in close rooms with nothing to do, and overlook the desirability of giving them occupation.

A second great fault is one well known and for which superintendents are not responsible, viz., over-crowding. Another criticism is the employment of untrained instead of trained nurses.

A fourth criticism is the lack of any provision for muscular exercise, such as calisthenics.

In general, I would say that hitherto the energies of those in charge have been directed towards hospital construction and very little towards the general improvement of the management of the insane. It is high time now that more progressive ideas in this direction should obtain, and now that we have model asylums constructed on the best modern principles, the energies of those in charge of the insane should be directed towards the improvement of the comfort and well-being of the inmates.

Question 3; Answer: In answer to this question I would say that I would build workshops in connection with every public asylum and would provide a sufficient number of attendants to instruct and look after the inmates at their work. Out-door employments should also be devised to a far greater extent than is now done even in our best asylums. At present, superintendents seem to be guided in giving employment to the insane by con-

siderations of the profit of the labor to the institution and not by considerations of the therapeutic and moral profit to the insane. Money value of insane labor should have no consideration in this question.

A certain number of inmates I know are employed in summer in farming, but the number is small and does not include anything like the number that might be employed. I would repeat again that the principle I would lay down would be that the profit of labor should not be considered, and that the insane should be employed not for what they produce, but for their own profit.

From the best information that I can obtain about 50 per cent., and, perhaps, more of the chronic insane could be given employment of some kind.

I also recommend the introduction of a gymnasium and systematic calisthenics, as has been done in the McLean asylum of our State. In this institution a professional teacher of gymnastics, who shall have entire supervision of this department, is about to be provided. This is a decided step in the right direction and the example should be copied in our public institutions.

I would also recommend the introduction of trained nurses in place of the untrained attendants now usually employed. The introduction of training schools for nurses have been followed by so great an improvement in the management of the insane in those asylums where they have been adopted that they should be adopted by all asylums.

Yours truly,

MORTON PRINCE.

P.S.—I enclose a report of our committee in which you will find reference to the points hastily sketched above.

FROM DR. B. SACHS.

New York, January 13, 1894.

My Dear Doctor :

I take great pleasure in answering your questions regarding asylum management. In my opinion this is by no means as good in America as it might be made. Insane asylums in America are homes for the insane, not hospitals for the treatment of mental diseases. In all the public asylums I am acquainted with, and even in the large private institutions no serious

attempt at proper treatment is made. I do not mean merely treatment of drugs, but the more advanced methods of treatment for the insane, by hydrotherapeutic procedures, by electricity, and the like are thoroughly ignored.

The remedies for defects in management that should be applied seem to me to be the following: There should be a chief officer in charge of the general management of the institution. All questions of general management and of clerical matters should be under his immediate charge.

In addition to this person there should be a medical superintendent who, if free from the clerical duties of the asylum, would be able to devote much more time to the medical duties proper of the institution. This medical superintendent should have an adequate staff of experienced assistants, and this staff might be so numerous that each member of it having a limited number of patients—say ten to twenty under his immediate control—would be able to come into close personal contact with the patient; would be able to study their mental peculiarities thoroughly, and would be able to do them much more good than under the present system, under which even in our private institutions a single man is responsible for fifty, or more, patients. I am a thorough believer in the good which results from intimate contact between the physician and the insane patients.

The successes in private practice are very largely due to the fact that the physician busies himself much more intensely with the patient, than has been possible under existing conditions in asylums.

I object also to the hordeing together of large numbers of patients in single wards. The plan adopted in Germany of dividing patients into smaller groups, of housing them separately, leads to better results. We might altogether take the newer insane asylums of Germany as a model in this respect.

B. SACHS.

FROM DR. M. ALLEN STARR.

1. Do you think the present asylum management of the insane in America as good as it can be made? I do not.

2. What faults do you find with it? What change would you suggest?

First. The over-crowding of asylums. States should provide more asylums located in the country built on the cottage system with grounds so as to admit, (1) a classification of cases; (2) appropriate employment for patients.

Second. The improper mingling of care and medical attention. These should be under separate management. The superintendent should have no medical duties. The medical men should be organized on the plan of ordinary hospital service, with a resident staff and all under the direction of a permanent resident medical superintendent. The fault at present is that patients are treated and observed by a set of young men who take such positions for want of something better, usually without skill and training. These men hold the position, do such duties as are assigned them at first, and later when they have some experience have so little scientific ability or literary capacity that they take no advantage of their opportunities for observation and publish nothing. The lack of proper training in pathology prevents them from contributing to scientific knowledge in this field. Hence the absolute lack of any scientific contributions to knowledge from the asylums of America.

The addition of a visiting staff of active, intelligent specialists would correct this. They would have an opportunity of observing cases. They would stimulate the internes to proper examination and study. They could direct researches and codify results. They could secure proper pathological examinations and reports.

M. ALLEN STARR.

FROM DR. WHARTON SINKLER.

Philadelphia, April 19, 1894.

My Dear Dr. Mitchell:

You asked me sometime ago to give you a brief statement of my views as to the present management of the insane asylums in America. I have visited several of the leading asylums in Pennsylvania and New York, and feel that there is vast room for improvement in the management of the patients in these institutions.

To begin with: I think that the medical officers of these institutions are not as competent men as they

should be, and are not selected with due regard to their previous experience in the management of the insane. For example, I happen to know that the appointment of one of the assistant physicians in one of our State asylums was recently made in the person of a young man who had been a graduate of only a year, and who had absolutely no experience whatever in insanity or nervous diseases, and who had not even served as an interne in a general hospital.

Secondly. The cases are imperfectly studied, either because there are too few physicians in the hospital to give proper attention to the cases, or because they lack scientific interest in the work: and they seem to treat the cases more in a routine manner than in any other way.

Thirdly. It is the exception for insane patients in asylums to be treated for physical conditions. There is no attempt made to treat the underlying neurasthenia which exists in many cases, or to investigate closely the defects of the different organs. I must say that there are exceptions to this rule; and I have found from conversations with Dr. Chapin, of the Pennsylvania Hospital for the Insane, that he is alive to the necessity of treating many of the cases of melancholia in women by means which are in the line of the rest treatment. Unfortunately there are no facilities in the asylum for using massage and systematic rest. Another point which is open to criticism in the asylums which have come under my observation, is the nursing. This is of the most inferior kind. The nurses are, as a rule, uneducated women and have had no training except what they have picked up after coming into the hospital. They are not nurses, but mere attendants; and I cannot see why a regular system of training schools cannot be introduced into asylums, as well as in general hospitals.

Yours very truly,

WHARTON SINKLER.

FROM DR. E. C. SPITZKA.

My Dear Doctor:

On the whole, I should state the condition of psychiatry in America to have improved in every respect, and I think the main improvement has occurred within the ranks of those who are physicians to

asylums themselves. It seems needless to-day to discuss the relative share in the prompting of a movement, which—as far as this side of the Atlantic is concerned, may be called “renaissance”—is attributable to outside influences, or those originating within the circle. The fact remains, that from the days of Luther Bell, Isaac Rae, Thomas Kirkbride, through a more recent period represented by Pliny Earl, McFarland, Grundy and Godding, the spirit of scientific inquiry infused by Rush has been kept alive, and that researches and results, chiefly of a clinical character, whose value was not appreciated at the time, have yielded practical results under the new impulse referred to.

I think it is generally conceded that there was a stand-still, if not a decided retrogression, in this field during the sixth and seventh decade of this century.

This was attributable to the complication of what naturally would have been medical questions with administrative ones, hopelessly entangled in the vilest kind of politics. I need but refer to the fact that what was once known as the “Asylum Ring” in one of the largest states in the Union, was notoriously and conventionally designated as a branch of the “Cana Ring.”

It is known that in another State, superintendents whose names are household words in science, were displaced to make room for relatives of political adventurers, accidentally possessing a diploma through some inscrutable dispensation of Providence. There seems throughout the United States to have been aroused among the profession at large a great re-attention and, consequently, a better directed aim with regard to the management of those interests involved. It is but just to asylum physicians, as a body, to state that to-day they regard the awakening of this interest as having been of the greatest aid to them; this, notwithstanding the fact that what had been styled as the Reform Movement was made use of in many instances by superficial and incompetent critics, and in a few instances by persons themselves of unsound mind, to obtain notoriety. It is safe to say that where ten years ago such phenomena as the pupillary reactions, other deep and superficial reflexes, defects in motor and sensory innervation were studied by one asylum physician, they are to-day studied by fifty. It is safe to add that when ten to twenty years ago the newly-admitted assistant physicians were stimulated to no higher ambition than to become a higher class of

attendants or stewards, the overwhelming majority of State and larger private asylums have attained the dignity of psychiatric clinics.

Whether competitive examination under Civil Service Reform Rules—the principle underlying which I am today, as I always was, an ardent defender of—has contributed to this result is an open question. On the whole, I think their introduction a step in the right direction. Another step in the right direction is the erection of State boards of lunacy of a predominating medical character. Whether in every instance such boards are to be regarded as unmixed blessings (which is disputed by some) does not, I think, affect the general question. Their erection is a step towards centralization of authority, and to that extent of uniformity. It should not be carried to such extremes as to convert a desirable uniformity into a monotony. Under such a system, individuality, the essential condition of originality and progress, is, if not killed, dwarfed.

E. C. SPITZKA.

FROM DR. DE FOREST WILLARD.

Drop name asylum and substitute hospital.

Moderate capacity; not too large and separate from politics.

Site selected with reference to hygienic surroundings.

Physician at the head of the institution with liberal salary.

The medical officer to be supreme, but to have only a supervising attention over business details; the actual work to be performed by a competent steward.

The control of food, as well as everything connected with the health of the patients, to be under the direction of the medical officer.

Acute cases to be absolutely isolated from incurable ones.

Recent cases and young individuals also to be separated as far as possible from older ones.

Employment of some kind for hands and brains should be furnished for every case whether acute or chronic—gymnastic exercises for those for whom employment cannot be secured; out-of-door occupation preferable.

DE F. WILLARD.

FROM DR. H. C. WOOD.

January 25, 1894.

Dear Dr. Mitchell :

In answer to your question, "Do you think the present asylum management of the insane in America as good as it could be made?" My answer is "No."

In the first place, I disapprove of the general methods, so far as I have seen them, of training of the doctors. Men go directly after graduation and are trained as specialists from the bottom. In my opinion they ought to have several years' training in general wards of hospitals and in private practice before entering into the study of a specialty.

Second. I think there is great need for the rich of two, three or four roomed isolated cottages, in connection with the asylum, to be occupied by a single patient and the attendant on occasion.

Third. I am profoundly impressed with the value of the European system of boarding of the chronic insane out, under supervision.

Fourth. So far as my familiarity with the insane hospitals of the country goes, I do not know of any that seems to me properly equipped with Turkish and swimming baths, and with facilities for amusing, and especially for working the patients. I may be mistaken, but I am not aware of any of the asylums having trained masseurs connected with them; and in the case of the very wealthy patients I think the prices charged are often absurd for what is given. The attendants usually are badly trained, and are very commonly taken from a comparatively low class.

Finally, I believe the experiment of having a regular visiting staff ought to be tried. I think that the physicians outside of the hospitals, in touch as they are with the general profession, would be more apt to keep the hospitals up to date. So far as private asylums are concerned, I am inclined to think the experiment would be followed by sufficient increased patronage to pay.

Yours very truly,

H. C. Wood.

FROM DR. PHILIP ZENNER.

Cincinnati, January 17, 1894.

Dear Dr. Mitchell:

I take pleasure in replying to your letter, to give my views on the subject you propose. It is true the following statements are not a categorical answer to your three questions, but, I hope, the answers can be readily seen therein.

That the management of asylums is not yet as good as it can be made is shown by the fact that the best institutions are making constant efforts to heighten their usefulness and are much in advance of those of a more conservative character. The directions of this advance are, chiefly:

In improved construction, or altogether different plans, of buildings.

In finding suitable employment for many of the insane.

In improved nursing—establishing training schools for nurses.

In removal of mechanical restraints.

I may speak of these as problems to be solved. One of them, the removal of mechanical restraints, is, already, nearly solved. One, the construction of buildings, the cottage, the agricultural systems, etc. (here may be included the classification of patients, and complete separation of certain classes, criminals, epileptics, etc.), is still in the beginning of its solution. The others, finding suitable employment for patients (for many, especially of the chronic insane, so great a boon, as well as aid in their treatment), and improved nursing (no one factor of greater influence for good or ill than the nurse) are on the way of solution, though very much is yet to be done.

I only mention these problems, with the hope that able and zealous workers in this field may so far solve them as to add very materially to the care and cure of the insane. But I, who have no experience in the management of asylums, cannot presume to give specific advice.

In another matter I may speak in bolder terms. The crying evil in the management of most American asylums is the influence of politics on all its appointments. Though the ill effects on all, even the most subordinate, positions of the asylum are but too apparent, I

can, now, only speak of the results to the medical appointments. They are only too well known. With few exceptions, the places are filled by men who have absolutely no preparation for the work. What is worse, they rarely grow really fit for the place, for the manifold duties in the crowded wards neither predispose nor enable them to critically analyze their cases and acquire a scientific knowledge of mental disease. The best men, who really acquire that knowledge, if not turned out of office, are likely to be appointed to the (financially) higher position of superintendent, where their purely medical services are almost suspended, their time being engrossed by the active duties of executive officers.

What change should be made is self evident. Only men should be appointed physicians to asylums who are thoroughly equipped for the work. The pay should be such as to attract good men, who should be retained as long as possible. Apart from the benefit accruing for the patients, such a change in system would enable our asylums to become, what they should be, but are not, seats of instruction. They should aid to advance scientific psychiatry to American students, especially those seeking to fill asylum positions, or to be in any way connected with forensic medicine. But I believe we may demand even more than this; they should help to solve some of the great social problems of the day. One is, the determining more positively the degenerative psychoses, those having a direct hereditary influence, a knowledge which should be spread universally. Another is the determination of the relation of crime to the peculiarities of mental and physical organization, and methods of limiting and controlling the criminal classes. It is true it is not to the asylum physicians, but rather to those of prisons and the like, that we should look for the solution of the latter problem. But those physicians should obtain from the asylum a knowledge of psychiatry, which should be an introduction to further anthropological studies to equip them for the work they could and should accomplish.

Finally, I must speak of what is a misfortune rather than a fault of management, but relief from which is a pressing need, the overcrowding of American asylums.

Perhaps we may find in the extension of the cottage, agricultural, industrial and like systems, relief from this evil. A further plan suggests itself to me, though its feasibility is another question, that is the reserving of

present public asylums for the poor classes only, the State building, similar institutions—that is on the most improved plans—for those who can pay, the latter just paying the full expense of the establishment. If such a plan be feasible, it ought to immediately relieve the great overcrowding of present institutions, and give to the inmates of the new asylums the double advantage of a comparatively small expense and (having all the equipments of the best institutions, means of employment, best nurses, etc.) a possibility of care and cure which no private asylum could offer.

Now, my dear doctor, I have occupied your time much longer than I intended, and I very much fear I do not exactly cover the ground you wish. As to the latter, I can only plead I have given you the best I have.

You are quite at liberty to use my name or statements as you wish. With kindest regards, I am,

Very sincerely yours,

PHILIP ZENNER.

A Case of Essential Hereditary Tremor in a Degenerate. - (*Gazette Hebdomadaire de Medecine et de Chirurgie*, No. 4, 1894.) Dr. Vautrin, on account of the relative rareness of the recorded cases of essential hereditary tremor, reports the following observation. The patient was the son of an alcoholic; he suffered from incontinence of urine and presented various stigmata of degeneration: malformation of the teeth and ears, mental weakness and melancholia. Besides these symptoms he had been affected since his infancy with generalized tremor. His head only remained unaffected. The oscillations were very short and slow, regular and continuing during sleep. They were not increased under the influence of voluntary movements, but were augmented by emotion and fatigue.

F. H. P.

Periscope.

EXCERPTS WILL BE FURNISHED AS FOLLOWS:

<i>From the Swedish, Danish, Norwegian and Finnish:</i>	<i>From the Italian and Spanish:</i>
F. H. PRITCHARD, Norwalk, Ohio.	WILLIAM C. KRAUSS, M.D., Buffalo, N. Y.
<i>From the French and German:</i>	<i>From the Italian and French:</i>
L. FISKE BRYSON, M.D., N. Y.	E. P. HURD, M.D., Newburyport, Mass.
BELLE MACDONALD, M.D., N. Y.	<i>From the English and American:</i>
PH. MEIROWITZ, New York.	A. FREEMAN, M.D., New York.
R. K. MACALESTER, M.D., N. Y.	

The Editor will not accept as ORIGINAL ARTICLES and CLINICAL CASES those that have appeared elsewhere.

Authors are requested to make none but typographical corrections on the proof sent to them. The manuscript must represent the final form in which the article is to be printed.

PHYSIOLOGICAL.

Relations Between the Auditory Apparatus and the Respiratory Centre, (*Lo Sperimentale-Memorie Originali—Anno xlvii, fasc. 5 and 6.*)—Prof. Giulio Fano and Dr. Giulio Masini, of Genoa, Italy, from a series of experiments to determine the inter-relations of the auditory apparatus and the respiratory centre, deduce the following conclusions:

1. A pigeon without semicircular canals presents profound modifications of the mechanism of respiration, which, in great measure, remain permanent, and presenting phenomena of deficient or of anomalous sensory impulses.

2. These modifications of respiration are much less notable when only the cochlea is extirpated, though it appears that this part acts most manifestedly upon the respiratory centre.

3. The semicircular canals react from the acoustic impressions, upon respiration pre-eminently in an inhibitory manner, while the cochlea causes an acceleration of respiratory rhythm, similar to that produced by the normal internal ear.

4. The respiratory movements approach the normal when after destruction of the semicircular canals the cochlea is extirpated.

5. Respiratory movements reflect very sensitively the impressions made upon the ear so that they may be employed as a sort of test of auditory sensitiveness.

6. In this manner one may demonstrate how sensitive the acoustic nerve is to auditory impressions.

7. Partial lesions of, or total lesions of, the organ of hearing impress permanent functional disturbances upon the bulbar centres.

8. These lesions are more severe if partial than if total.

9. The intensity is in correspondence with the severity of the disorders of equilibrium and movement

There seems to be a sort of functional antagonism between the semicircular canals and the cochlea. Of this they will treat more thoroughly in a work soon to be published on the cerebral influence of phenomena consequent upon lesions of the internal ear.

F. H. P.

PATHOLOGICAL.

Abstract of the Theory of the Mechanism of Cerebral Injury by Contre-Coup, (*The Birmingham Medical Review*, January, 1894.)—Prof. F. J. Allen, of Birmingham, England, in a paper read before the British Medical Association on the theory of the mechanism of the cerebral injury by contre-coup, offers the following: When the skull is struck forcibly at a particular region—say the occipital—the comparatively rigid cranium is driven, as a whole, away from the point of impact (forward in this case), the brain, owing to its softness, lags behind, and tends to flatten itself against the cranial wall on the struck side (occipital). This may cause direct injury. But the cranial wall here supports the brain substance and distributes the force of the blow over a wide area, rendering the injury less acute. The chief injury occurs on the opposite side (frontal), where the lagging brain tends to move away from the cranial wall and receive no support from it. At the centre of the unsupported surface there is a point where the soft brain substance is tending to depart in all directions in the act of flattening itself. At this point of greatest strain the rupture will occur. After the first rupture, waves of oscillations will follow, and these may increase

the injury. If detachments of the dura mater can be caused by contre-coup, as some observers have maintained, it should be the result of exhaust or suction at the moment when the brain recedes from the inner surface of the cranium. This so-called contre-coup detachment of the dura mater is said to take place only in the squamous region, where the dura mater is not so strongly attached to the bone as in other regions. F.H.P.

Etiology of Trigeminal Neuralgia.—(*Medicinische Neuigkeiten*, No. 50, 1893). Dr. Hoennecken states the well-known fact that lesions of the teeth may provoke trigeminal neuralgia. They are generally found carious or there are stumps and roots which irritate the root nerves, but again there may be an entire absence of any apparent anomalous abnormality of the teeth. The dental pulp in such cases is the part affected. This affection is liable to give rise to rebellious neuralgias; therefore, it is necessary to know how to diagnose and treat them. He relates several such observations of this class where, though the tooth was seemingly normal to the naked eye, yet on microscopic examination, the pulp was found to be hyperemic, or to contain calcareous concretions. Therefore, in cases of neuralgia, one should carefully examine each tooth, and if one be suspected, drill into it and examine it.—*Gazette Hebdomadaire de Medecine et de Chirurgie*, No. 3, 1894.

Dr. F. Busch, of Vienna, presents the following differential diagnostic points in the recognition of the two varieties of toothache: that from inflammation of the pulp, pulpitis, and that dependent upon periodontitis. Pulpitis is one of the chief causes of toothache. Cold drinks and cold air increase the pain, while warm ones do not affect it; it is not sensitive to pressure; the pains radiate into the upper branches of the trigeminus, passing into the temple, eye, ear, even into the entire head and back of the neck. It is often confounded with rheumatic pains, and is very prone to pass over into periodontitis. Periodontitis is characterized by increase of the toothache by warm fluids, the patient will hold cold water in his mouth to ease the pain; the tooth is very sensitive to pressure so that the patient can distinctly point out the aching tooth, while in pulpitis he may be uncertain, and is even liable not to know which is the aching one. The soft parts swell generally on the second or third day, and may be followed by suppuration. A sen-

sation, as if the teeth were too long, is only observed in periodontitis; never in pulpitis. In pulpitis, the pain is intermittent; in periodontitis, remittent or continuous. In both conditions the treatment varies. In periodontitis extraction is the only efficacious measure, while in pulpitis a paste of arsenic and morphine soon kills the pulp and permits one to fill and thus to save the tooth.

F. H. P.

CLINICAL.

Hereditary Tremor and Chorea.—(*La Medecine Moderne*, Jan. 10, 1894). Dr. C. Achard states that chorea develops in subjects with a neuropathic predisposition. In the case which he reports there was a transmission of a disease which differed somewhat from chorea, but which was similar and apparently transmitted from parent to child. The patient, aged nineteen years, had been affected with choreic movements for a month and a half; they were especially pronounced on the left side. With the choreiform movements there was an associated athetoid condition and generalized tremor. This observation goes to support Joffroy's view that not only does chorea develop in subjects with a neuropathic hereditary taint, but it is also an indication of a degenerescence affecting especially the motor system.

F. H. P.

Drs. Pierre Marie and Louis Guerlain (*La Médecine Moderne*, Feb. 10, 1894), report the cure of a case of myxœdema by the ingestion of the thyroid gland. The patient had been afflicted for eight years with symptoms of a severe type. The cure was effected in two months, with a diminution of the body weight of seventeen kilos. The recovery was complete in every way. The method of preparation and administration was: Take a lobe of fresh sheep's thyroid, hash it on a plate, pour some hot bouillon on it, and make the patient swallow it immediately. In regard to the dosage: one lobe daily at first; after three or four days, one lobe every other day, and later every three or four days.

R. K. M.

Dr. Rohmer presented before the "Société de Médecine" (*La Médecine Moderne*, Feb. 21, 1894), a child three years old with a fluctuating cranial tumor at the site of the right occipito-parietal suture, the size of a large walnut. There was a smaller one a little in front. The right eye-ball protruded; there was a bruit and pulsation over the tumors isochronous with the radial pulse. On compression of the right carotic, the eye-ball fell back

in the orbits, the tumors diminished in size, and the bruit ceased. Rohmer attributes the foregoing conditions to dilatation of the intra-cranial veins on the right side, and proposes ligations of the carotic as a therapeutic measure.

R. K. M.

Meningeal Hemorrhage following Anthrax Infection.—Drs. Roger and Crochet (*La Médecine Moderne*, March 3, 1894), observed the following interesting case:

A man entered their service suffering from erysipelas, which had developed around a malignant pustule, of four days duration. Suddenly the patient lost consciousness and collapsed. Muscular contractions and complete anæsthesia set in, and he died in coma three hours after the onset. The autopsy revealed that the entire pia matter of the brain was transformed into a sanguinolent covering. The spinal meninges were congested, with a hemorrhage in the lumbar region which encircled the cord. Examined bacteriologically, both bacilli anthrax and strophococci were found in abundance (double infection).

R. K. M.

Dr. P. Marie (*La Médecine Moderne*, Feb. 24, 1894), is of the opinion that the *primum movens* of morbus Basedowii is to be sought in a disorder of the major sympathetic nerve: Under the influence of this disturbance the functions of the thyroid gland are exaggerated, which gives rise to a "*hyperthyroidations*" of the body, in consequence of which, all the symptoms of the disease itself, as well as those following the administration of thyroid extract may be observed.

R. K. M.

SURGICAL.

Preventative Trepanation in Gun-Shot Wounds of the Cranium.—(*Le Mercredi Medical*, No. 3, 1894). Dr. Cupin reported before the Paris Society of Surgery three interesting cases of gun-shot wounds of the cranium, where trepanation gave very favorable results with absence of apparent and indicating symptoms. The first case was that of a soldier who had received a wound in the occipital region from a revolver bullet. There was no loss of consciousness, no paralysis, nor contractures, and a good general state. Was it necessary to interfere surgically in absence of all functional symptoms? After reflection, the writer enlarged the wound, resected the external table at the point of en-

trance of the projectile, and found the internal table to be fractured. He removed the splinters and discovered upon an intact dura mater, a hemorrhagic focus, filled with clots. This was cleaned out, the wound dressed antiseptically, and a recovery without complications followed. In such cases a preventative trepanation is best done. He observed a similar case at Versailles during the Franco-Prussian war, when, from nothing being done on account of absence of functional disturbance, the patient finally succumbed. In the discussion which followed, Dr. Marchant said that he had observed an analogous case six months before. A young man had shot himself in the left frontal region with a revolver. No particular disturbance being noticed, an antiseptic dressing was applied. The following morning the temperature had risen somewhat though there was neither loss of consciousness nor pain in the affected region. On examination of the wound, an opening in the bone was discovered with the ball split into two pieces from striking against the skull. One-half was found arrested in its course in the bone, and the other half under the dura mater.

F. H. P.

THERAPEUTICAL.

Thirty Cases of Epilepsy Treated by Subcutaneous Injections of Testicular Juice.—By Drs. Bourneville and Paul Cornet.

In the *Progrès Médical*, December 9 and 16, 1893, these authors give their results with testicular juice in the treatment of epilepsy. Their verdict is all the more convincing; first, because no hospital in the world harbors so many epileptics as the Bicêtre of Paris, and suitable cases were at all times superabundant; then, too, perhaps, no observer with the possible exception of Féré has studied the epileptic as thoroughly as has Bourneville.

The cases treated were divided into three classes. The first class was composed of ten children, who were treated for forty days, with a 20% and 40% solution of the juice. In nearly every case the number of attacks had increased, and no favorable influence could be detected.

Class number two, comprising ten children, were treated after Brown-Séquard's method for a period of sixty-five days, the fluid used having been prepared by Egasse, under the direction of D'Arsonval. Of these cases, six experienced no improvement. The attacks

having increased in number, two cases remained stationary and in two did the number of attacks decrease, although no mental or physical improvement could be noted.

The third class was also composed of ten children who were treated two months, the fluid having been prepared by the authors from the testes of a ram, instead of a bull as in the preceding classes.

Of these cases, four were improved. In conclusion, the authors state that in reality only twenty-eight cases were treated a sufficient length of time to judge of the efficacy of this mode of treatment. In eight cases only was there noticed a slight diminution in the number of attacks, while in twenty cases there was decided increase in the number of spells. All of these cases were of inferior mental developments, so as to test the remedy in this particular, but in no case was there any improvement reported.

These results are in perfect accord with those of Ch. Féré, and contradictory to those of Prof. Pierret. An increase of weight was noted in six out of ten cases (second series), a decrease in three and no change in one.

The injections were followed by no local troubles.

Féré, one of the ablest of French neurologists, at the request of D'Arsonval, gave the method a thorough trial at the Bicêtre Hospital. In his communication to the Société de Biologie, just four years after Brown-Séquard's, he, in unmistakable language, disapproves of the method and cites nine cases which had been under treatment. No favorable results was obtained in any case; on the contrary, the injections seemed to act as a depressant. W. C. K.

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AUGUST 1894.

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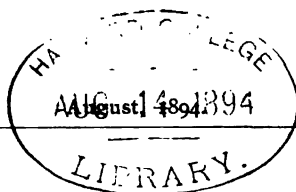
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THE
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Original Articles.

**A CASE OF MYXŒDEMA TREATED BY SHEEP'S
THYREOID.¹**

By SAMUEL AYRES, M.D.,

Pittsburg.

AN apology would certainly be due the members present, were I to occupy much time in the recital of the clinical memoranda of a single case of myxœdema. It is so well known that reports of cases of this disease and the new treatment have been multiplying in the journals and before medical bodies for the last two years or more, that it would be quite superfluous to add, and doubtless, tiresome to receive another on an occasion like this. Besides, the subject has been exhaustively treated by a number of physicians abroad and by several in our own country, especially Drs. J. J. Putnam,² Hun and Prudden,³ Kinnicutt,⁴ Gray,⁵ and Crary.⁶

¹ Read at the meeting of the American Neurological Association, Washington, D. C., May 30, 1894.

² *American Journal of the Medical Sciences*, August and October, 1883. *Boston Medical and Surgical Journal*, February 15, 1894.

³ *American Journal of the Medical Sciences*, January and August, 1888.

⁴ *New York Medical Record*, Vol. xlv., p. 449.

⁵ NERVOUS AND MENTAL DISEASES, p. 537.

⁶ *American Journal of the Medical Sciences*, Vol. cvii., No. 5, p. 515.

My purpose in the present paper is to briefly refer to this case, to speak of a few points in the treatment of sheep's thyreoid, and, especially, to offer some suggestions as to the possibility of this remedy in other diseases.

Unquestionably, the thyreoid preparation as now generally used is as nearly a specific for the temporary cure of myxœdema as could be desired; and that it is, as has been well said, one of the greatest therapeutic triumphs of the age, cannot be doubted by any one who has witnessed the marvelous transformation effected by it.

The majority of cases have, however, shown a tendency to relapse after a certain time on suspending treatment, so that the remedy cannot be claimed as a permanent cure for all cases; but the symptoms yield so rapidly, to a renewal of the medicine or are so effectually controlled by an occasional dose, that for practical purposes, the cure can be regarded as complete.

Many details as to the dosage, the best forms of the preparation, the frequency of administration, etc., are quite well established and need but a moment's reference. The hypodermic method is now rarely resorted to, for the reason that the powder or extract in capsules or tabloids internally is quite as efficacious, is easily taken and is not in moderate doses attended with the danger which has frequently followed the sudden introduction of the medicine subcutaneously.

Thyreoid transplantation, the history of which is so well known, or the ingestion of the raw gland, is, I presume, rarely practiced now as a therapeutic measure.

The dessicated powder, in capsule or in keratin coated pills, as first suggested in this country, I think, by Dr. J. J. Putnam, is perhaps the most satisfactory form of the preparation so far devised and that which is most generally employed. The dosage has varied widely, but from the very unpleasant and even dangerous symptoms often resulting from large doses, it would seem that one or two grains given daily, and gradually

increased to five grains twice or thrice daily, is quite sufficient. This quantity should be diminished by degrees as improvement follows, until it be finally withdrawn.

The importance of obtaining a reliable preparation of the gland is very great, for it has been shown that these bodies are after the seat of cystic degeneration. This may account for some failures in the use of the remedy.

Referring to the case of myxœdema that is the subject of this paper, it may be briefly stated that she was a widow fifty-three years of age, sent to me for advice in December, 1893, by Dr. Pillow, of Butler, Pa., who had correctly diagnosed the disease. Her weight at that time was 204 pounds,—formerly in health, 160 pounds. The disorder was then of two years' duration, and resulted apparently, as so many cases do, from emotional disturbances,—great worry and anxiety. All of the characteristic symptoms were present which need not now be narrated, as they are so well known to all of you. The temperature was normal, also the urine. The blood was not examined.

The thyroid gland became enlarged in the early stage of her disease, as is often noted, and then gradually atrophied, so that at the time of my examination in December, it could not be detected. The dose of thyroid recommended by me to her physician was fifteen grains of the desiccated powder in three equal capsules every other day; but by some misunderstanding, she took this quantity every day, and soon experienced all the severe effects of such large doses, viz.: nausea, tremor, palpitation, weakness, flushing of face, vertigo and anorexia. At the end of one week, it became necessary to reduce the dose to three grains three times daily, which was continued for three weeks. At the expiration of this period, or four weeks from the commencement of treatment, the result was certainly striking and most gratifying. The patient had lost forty pounds in weight, and excepting considerable weakness, was practically

free from the myxœdematous symptoms. She continued quite well until April 12th last, when having actively resumed her business, which was that of millinery, and entailed much care, she observed a slight enlargement of the thyroid body, some recurrence of the supra-clavicular tumefaction, insomnia, slight defect in memory and a scaly roughness of the facial integument. She at once returned to the thyreoid, taking ten grains every other day for one week, with entire relief of all symptoms, and has remained well since the above date.

The use that may be made of sheep's thyroid in the treatment of other diseases opens up quite an interesting field for investigation and one that has been little developed.

The line of reasoning pursued by Bircher, Kocher, Horsley and Murray, and which lead to the application of thyreoid in myxœdema seems quite logical to us now; that is, to supply to the economy that "something" of which it was deprived by the atrophy of the thyroid gland. But it does not, of course, seem quite so rational to make use of this preparation or to expect favorable results from such use, in diseases, in which this gland is apparently not involved. Yet the experience of B. Bramwell¹ with it in some cases of psoriasis and lupus without myxœdema, shows that its action may decidedly modify the nutrition of the skin; and the benefit that has accrued in some cases of obesity without known diseases of the thyreoid body proves that it has considerable effect in this condition.

Dr. Putnam in his able paper² read before the Suffolk District Medical Society, last December, refers to the trial made by Vermehren, of Copenhagen, of thyroid in several cases of impaired nutrition, but the results of these experiments are, I believe, not noted.

A case of melancholia reported by Dr. Claye Shaw,³ which was thought to be insane some time before myx-

¹ *British Medical Journal*, March 24, 1894, p. 617.

² *Boston Medical and Surgical Journal*, February 15, 1894.

³ *British Medical Journal*, August 27, 1892, p. 451.

œdema developed and was entirely cured of the mental and physical trouble, leads us to hope this treatment may favorably influence some mental disorders, and it is in this direction that the possibilities of the remedy are of considerable interest. I have been unable so far to find any observations on the employment of this preparation in cases of insanity independent of myxœdema, yet such use of it may have been made.

An important preliminary to the therapeutic use of thyreoid in mental disorders would be a careful study of the condition of this gland in the insane, but unfortunately, I have no data to present to the Society in this direction, for I have not been able to discover any investigations of this character and am not aware that they have been made. But I trust the physicians in our asylums, especially, will give us the benefit of researches in this field at an early date.

While not advocating by any means the indiscriminate use of this remedy in all nervous and mental affections, I would suggest a trial of it in the following: Selected cases of acute dementia, mania, melancholia, tetanus, epilepsy, chorea, anæsthesia, and in erysipelas.

In St. Francis Hospital, in our city, where there are a number of cases of insane, I have advised the experimental use of thyreoid in some patients, but its employment is too recent to report results. And in some private choreic and epileptic cases, I am instituting this treatment which will be reported at another time.

My paper, Mr. President, which is purposely brief, because theoretical in this particular phase, is only intended as above stated to suggest a trial of thyreoid in non-myxœdematous diseases, and to elicit if possible from the members an expression of their views as to what results, if any, may be expected from such treatment, and to ascertain if any have had personal experience in this direction.

A BRIEF REVIEW OF THE THYREOID THEORY
IN GRAVES' DISEASE.—REPORT OF TWO
CASES TREATED BY THYREOIDECTOMY.¹

By J. ARTHUR BOOTH, M. D.

RECENT investigations as to the functions of the thyroid gland and the internal administration of the extract of the thyroid in the treatment of myxœdema, as well as the increasing number of cases reported as cured by operation, affords material for further reflection, and certainly encourages one to renewed labor in the study of the etiology and pathology of the symptom-complex so well known by the designation of Graves' disease. During the past three years the German surgeons have reported quite a number of typical cases of this disease, cured by partial removal of the thyroid and although here in America the sentiment in favor of operative interference in these patients is slow in its growth, still facts are accumulating which inclines one to believe that a cure is possible by thyroidectomy.

Although any of the various theories which have been advanced with regard to the origin of this mysterious disease are satisfactory in explanation of individual symptoms, none seem sufficient to account for the entire complex presented by it. A focal nerve lesion in the sympathetic or medulla certainly does not explain the condition, and it does seem that there must be something more than a simple neurosis.

The antithesis presented by myxœdema, and the successful treatment of the same, as well as the more careful investigation of the pathological changes in the thyroid, have, within recent years, resulted in the advancement of a new theory, which is founded on the supposition that exophthalmic goitre may be due to a primary disease of the thyroid gland, and through functional or

¹ Read at the meeting of the American Neurological Association, Washington, D. C., May 30, 1894.

structural change causes some poison to be generated here, which, circulating in the blood, irritates the nerves; or that it withdraws from the blood too much of certain substances needed for nerve nutrition. In speaking of it as a disease of the thyroid, it is not to be understood that a nervous causation is to be entirely excluded. Grutzner, from physiological experiments, concludes that the thyroid has the function of neutralizing certain products of the economy harmful to the nervous system. If the blood of an animal, from which the thyroid has been previously extirpated, is infused into the veins of another animal, the latter shows symptoms similar to those of operative myxœdema in man. Furthermore, it is an interesting fact that during the application of the thyroid treatment many symptoms are produced that are similar to those found in Graves' disease, viz, tachycardia, elevation of temperature, insomnia, agitation, polyuria, incomplete paraplegia, excessive sweating and diarrhœa.

The thyroid theory is supported by the similarity and points of contrast between this disease and others depending upon a deficient action of the thyroid, by the fact that signs of Graves' disease may develop in cases of ordinary goitre, and that operative treatment may influence the disease considerably. It is not necessary to repeat the many facts in support of these dicta already often recorded and now accepted both here and abroad.

Quite a number of objections have been raised which are thought to weaken this theory, and among these the following deserve consideration :

1. Tachycardia and many other characteristic symptoms may develop without a goitre.
2. In simple enlargement of the thyroid the symptoms of Graves' disease do not appear.
3. Exophthalmos and Græfe's sign have not been produced in those cases of myxœdema treated by the internal administration of the thyroid.

Concerning this first objection, there is a doubt

whether, in all the cases so reported, a careful and thorough examination was made for slight enlargements of the gland, and though not found by inspection and palpation, it does not mean that there may not be a slight increase in size or change of structure. It is exceedingly difficult to determine its exact size during life, and in the thyroidectomy cases it is surprising to find how much larger the gland really is when exposed to view. Even if there be no increase in size, there may be perverted function, causing, possibly, direct irritation of the muscle of the heart; for recent pathological investigation has demonstrated special changes in the amount of secreting tissue in these cases. Greenfield, of Edinburgh, especially emphasizes the point that it is not the mere size of the gland which is of importance, but its structural alterations. In order to verify these suppositions, the thyroid in future should receive more attention than it has in the past.

(2) The second statement may be true as to a certain number of cases, but there are also some of this class who do develop tachycardia and many of the nervous symptoms of Graves' disease. Besides, in cases of simple goitre, we are not sure that enlarged thyroid necessarily means altered function.

(3) Regarding the absence of exophthalmos in those cases treated by the internal administration of the thyroid, we now know that many of the minor symptoms have been produced, and it is now important to inquire whether exophthalmos might not result if it were possible to push the medication to a greater degree without danger.

Although we cannot, at this time, answer positively all these mooted points and arrive at any dogmatic conclusion, still, when we stop to consider the present state of our knowledge of the disease and the results obtained by treatment, we must certainly confess that a marked advance has been made, further corroborative pathological findings being only necessary in order to make the thyroid gland the responsible nucleus for this interesting disease.

As additional evidence of the improvement to be obtained by partial removal of the thyroid, I now wish to record the following cases;

CASE I.—The patient, Louis E., aged 24, was first seen January 23, 1893. The family history is entirely negative. She never had any illness worthy of note up to the date of the present trouble. About two years ago she first noticed enlargement of the neck, and three months later the eyes became affected. The patient is positive that there were no heart symptoms until six months later, when palpitation, throbbing in the vessels of the neck, shortness of breath and flushing of the face appeared. All these symptoms gradually increased in severity, and in addition there was marked insomnia, because of the tumultuous action of the heart. Both eyes are very prominent, especially the left, and the lids do not follow the movements of the eyeballs. The pupils are moderately dilated, reacting to light and accommodation. Vision not impaired and fundus normal.

The enlargement of the thyreoid is marked; the right lobe being the larger. On inspection, pulsation is quite noticeable over this region along the sides of the neck. Over the middle of the thyreoid, the neck measures 14 inches. The pulse is 150 and of high tension. The apex beat is diffused, but no murmur is present. Respirations 24 to the minute. Measurement over bust $31\frac{1}{2}$ inches, and on full inspiration $32\frac{1}{4}$. During a period of six months, from January to July, 1893, the patient received daily applications of galvanism and appropriate internal medication. At the end of the above period there was some improvement in all the symptoms, including a slight reduction in the size of the neck, and the eyes were less prominent. During July, August and September, the patient received no regular treatment, but faithfully carried out my instructions as to resting several hours each day. After this time, she relapsed into her former condition; the exophthalmos was well marked, and the right lobe of the thyreoid very prominent. Further treatment failed to make any material alteration in her appearance, or cure the many subjective symptoms from which she suffered; so operative interference was considered and decided upon. The accompanying photographs Nos. 1 and 2 show fairly well the appearance of the patient at this time.



FIG. 1.



FIG. 2.

The operation was performed by Dr. B. F. Curtis, on November 11, 1893. A right transverse incision was made just below the hyoid bone and a vertical incision from the inner end of this at median line. The flap thus made was turned back and exposed the right lobe of the thyreoid. There was but little bleeding, the vessels being carefully dissected out and tied as found. A supernumary lobe was found attached to the inferior angle and pressing directly upon the trachea; this was removed. The entire exposed mass was then separated from its bed and from the trachea, the isthmus ligated and the whole right lobe removed.

During the operation, the pulse was between 180 and 200, irregular and intermittent, but respiration continued normal and no stimulation was necessary. By evening she had made a good recovery from the ether, complaining of severe pain in the throat. Voice not husky and of good strength. Up to the fourth day after the operation, nothing occurred worthy of note; the patient then had much nausea and vomiting, accompanied by a sharp rise in temperature. These symptoms continued for two days and then rapidly disappeared. On the tenth day, the dressing was removed for the first time, and the wound was found healed by primary union.

The course of the case after this was satisfactory, and on the sixteenth day she was discharged from the hospital.

Inspection of the specimen after removal did not reveal any great degree of vascularity; it was homogenous in appearance and hard in consistency. Microscopically, the tissue showed the structure of normal thyreoid gland with the alveoli moderately distended with hyaline material, and in places thickly crowded small cells, both in the alveoli and in the stroma, but principally in the latter.

It is now about seven months since the operation, and there has been a progressive and decided improvement in all the symptoms, especially is this so with regard to the various nervous phenomena, viz., insomnia, restlessness, flushing of the face, excessive sweating and palpitation. The pulse now varies between 96 and 110, as compared to the former ratio of 120 to 160. The appended table shows the pulse average of the past nine months.

AVERAGE OF PULSE RATE.		
1893	August	148
	September	156
	October	136
	November	146
	December	120

1894	January	120
	February.	110
	March.	104
	April.	104
Operation—November 11, 1893.		

The eyes are noticeably less prominent, and the remaining left lobe of the thyreoid is smaller; the degree of improvement being appreciated by comparing these photographs taken at different intervals before and since the operation.



FIG. 3.

CASE II.—Anna D—, *at.* 20, single. One month ago (April 23d), the patient was referred to me by Dr. S. E. Milliken, and the following history obtained: Family history negative. Three years ago, she first noticed the enlargement of her neck, and three months later prominence of both eyes. She became very nervous, could not sleep, and was much disturbed by frequent attacks of palpitation.

The tumor in the neck gradually increased in size, and on May 11, 1893, she entered Roosevelt Hospital,

where a few days later the right lobe of the thyroid was removed by Dr. McBurney.

Six months after the operation, the nervous symptoms had entirely disappeared, the eyes became less prominent, and there were no attacks of palpitation or dyspnoea.

It is now one year since the operation, and there is entire absence of any exophthalmos; the pulse, formerly 140, is at present below 100 beats to the minute, and the nervous symptoms have disappeared.

We must confess from the facts before us that the results obtained in these two cases are in additional support of the evidence already introduced by Wette, Mobius, Joffroy, Greenfield and Putnam.

Conclusions: 1. It is by no means decided that a mere excess of the thyroid secretion is the sole and essential factor in Graves' disease; but as microscopical examination has demonstrated an enormous hyperplasia of the secreting structure, it is certainly reasonable to suppose that these changes must have some profound effect, both on the quality and quantity of the secretion.

2. If altered structure and not size is the test of the disease, then thyroidectomy should be considered even in those cases where there is little or no enlargement of the thyroid.

3. Cases of Graves' disease may be entirely cured by thyroidectomy.

How this is brought about is not clear as yet. It may be in one of three ways, viz., a diminution of the functional activity of the gland substance; a relief of the stretching and irritation of the sympathetic nerve fibres, or, finally, in the removal of pressure.

CEREBRAL ŒDEMA.

By GEORGE J. PRESTON, M.D.,

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THE subject of cerebral œdema does not present itself as a distinct entity with constant features, either clinical or pathological. The same laws that apply to the subject of œdema in general, are applicable to cerebral œdema, with the important exception that in the latter case there are certain anatomical peculiarities that greatly modify the conditions under which these laws operate. It is only recently that we have arrived at clearer ideas of the pathology of œdema, and have become dissatisfied with the old mechanical theory of its production. In an interesting paper, by Horsely¹ and Boyce, the following statement occurs: "It is not going too far to assert that the remarkable paper by Tigerstedt and Santesson, disposes once for all, both of the conclusions that have been derived from physical considerations, and of the claim that the process of transudation in the living body is capable of interpretation by the mere variations of pressure on the sides of a permeable membrane." Unquestionably, blood pressure and the rate of flow are important factors in the process, but cannot adequately explain all cases. We know, both clinically and experimentally, that certain states of the blood favor transudation. Again the nervous system exerts an important, though not well understood influence upon the production of œdema, as illustrated by the well-known experiment of Ranvier, of tying the vena cava in the dog, and obtaining œdema of the leg only when the sciatic nerve had been divided.

¹ Presented at the meeting of the American Neurological Association, Washington, D. C., May, 24, 1894.

² *Brit. Med. Jour.*, Jan. 25, 1893.

Finally, the condition of the blood vessel wall must be considered, the vitality of the endothelium. Some interesting observations have been made upon this point by Sewall.³ These laws relating to the general subject of œdema must of necessity undergo some modification, when we consider, first, the number of end arteries in the brain; second, the indistensible venous sinuses; third, the peculiar nature of the lymph spaces and channels. These lymph spaces are of three varieties; first, those of the membranes; second, those of the vessels; and third, those of the cells. All the membranes of the brain are utilized for the purposes of the lymphatic system. The connective tissue meshes of the dura and the sub-dural space, the sub-arachnoid space, and the clefts between the layers of the pia. The sub-arachnoid space is the great lymph reservoir, the other spaces being of little importance in comparison. Owing to the irregular conformation of the surface of the cortex, the arachnoid space is not a uniform cavity, and moreover, at certain places relatively large lacunæ are left, known as the *cisternae arachnoidales*. These lymph spaces, dural, pial, and arachnoid, all communicate with each other, with the lateral ventricles, with similar spaces in the spinal cord, with the perivascular and pericellular lymph spaces, with the venous sinuses, by means of the Pacchionian bodies, with the perineural lymph system, and with the extra cranial lymph system. The arteries in the pia and in the brain lie in a space known as the perivascular lymph space, and this space is often considerably larger than the vessel itself. (Shäfer.)

This is the perivascular space of His. Also between the adventitia and the muscularis is a space known as the adventitial lymph space (Virchow-Robin). Moreover, the cells of the cortex lie in a space, the pericellular lymph space, and these two systems, the perivascular and pericellular communicate with each other, and, as has been seen, also, with the sub-arachnoid space. It

³ Paper read before 23d meeting of the Colorado State Med. Society.

can thus be seen how wonderfully abundant is the provision for lymph overflow, for comparing the brain with any other tissue or organ, we are forced to the conclusion that this immense area of lymph space is not intended merely for rapid interchange of nutrient fluid or used up material.

Reasoning from anatomical grounds, one function, and perhaps the most important function of this system, must be to equalize pressure in the brain. This organ, enclosed in its bony case, and surrounded by the firm inelastic dura mater, must have some arrangement by which sudden or great influxes of blood, or venous retention can be compensated and the pressure equalized. The soft texture of the brain renders it imperative that local pressure should never be very great, and this provision is met by the arrangement of the lymph spaces. If a certain vascular area be overfilled, the perivascular lymph space stands ready to receive either the increased bulk of the arteries or veins, or their overflow. This overflow is at once distributed to neighboring perivascular or pericellular spaces, and if necessary sent into the great subarachnoid space, or the ventricles. The conservative value of this free interchange between the various lymph spaces, is emphasized by the ill effects which we sometimes see brought about by limited cavities being shut off from communication with the main system.

In looking now for the causes that might be operative in bringing about cerebral œdema, we at once come to the conclusion, that ordinary increase of the force or frequency of the circulation, or even moderate venous obstruction, will not be adequate to explain the condition, since the arteries are allowed room for distention, and the serum that might be forced out by mere mechanical action, as has been shown is not great in amount, and would at once be taken up by the lymph spaces. In some experiments recently made with reference to this point, I found that the internal jugular veins, in dogs, could be clamped, or even tied, without very serious

complications. Clamping for fifteen to twenty minutes produced no appreciable effect, except temporary embarrassment of the circulation and respiration. In animals in whom the jugulars were tied, the symptoms already mentioned were more marked, and in addition, convulsions or spasmodic twitching. One of the animals in whom both internal jugulars had been tied, was allowed to live for more than a week, and after the first hour there were no symptoms other than a certain amount of stupor, the animal remaining in its corner, and with difficulty aroused. In no case, whether after clamping the jugulars for twenty minutes, or tying them and killing the animal twenty-four hours and less afterwards, or in animals in whom the jugulars had been tied and the animal kept alive for a week or more, was there any marked cerebral œdema. In the animals killed a few hours after the operation, there was great congestion and some increase of subarachnoid fluid, but the ventricles were empty. In the animals killed several days after the tying of the veins, the brain was anæmic, and there was no excess of fluid. In one case there seemed to be a dilatation of the aqueduct of Sylvius. Passing over the physical theory as inadequate, we turn to the other most prominent factors, viz., alterations in the blood itself, changes in the vessel wall, or faulty innervation. There is no reason to suppose that these factors are more potent in the case of the cerebral, than in the general circulation, except perhaps it should be taken into consideration that the cerebral vessels have not the same support as vessels elsewhere, but run in lymph spaces. Again, even if there be excessive transudation of serum, the great lymphatic system of the brain rapidly disposes of it. To test this, a dog was trephined and coloring matter injected into the brain, and also coloring material in powder placed under the dura, and in twenty-four hours the animal was killed, and hardly a trace of the large quantity of coloring matter could be found. In order to have cerebral œdema then, it is necessary either that the factors above mentioned be un-

usually active, or that a very large quantity of serum is transuded, so great a quantity, that the lymphatic arrangement of the brain is unable to deal with it, or in the second place, there must be some disturbance of the lymph system. This latter condition is certainly a most powerful factor in the production of cerebral œdema, and acts in two ways: first, a general inflammation of the meninges not only impairs the power of the lymph spaces to dispose of the transuded fluid, but furnishes in its process more or less serum; secondly, inflammation of the membranes, often obliterates the passage of communication between the several lymph spaces, thus preventing the distribution of the fluid. So much for the causes active in producing cerebral œdema. At first sight it might be thought that cerebral œdema ought to be a very common affection; the free and rapid circulation in the brain, the end arteries, the peculiar venous sinuses, all favoring it. On the other hand, however, it is seen that the remarkable lymphatic system more than compensates for these various favoring conditions.

The pathological anatomy of cerebral œdema has attracted little attention. There are certain gross appearances, certain physical alterations, brought about by an excess of fluid in the brain, but no definite structural changes have as yet been discovered. It might be said in passing that we have no method sufficiently delicate to appreciate the changes that theoretically might be produced in the protoplasm of the cells, by an excess of fluid. Again, it must be borne in mind that in cerebral œdema the conditions are very favorable for the action of toxines; the lymphatics are not doing their proper emunctory work, and waste materials may not only be unduly retained, but further elaboration of toxic substances may take place. The microscopic appearances of the brain in cerebral œdema are fairly constant and characteristic. After the removal of the dura the arachnoid is seen more or less tense, with or without milky opacities. The convolutions are widely separated, and in extreme cases are flattened. The ventricles are some-

times distended, at other times apparently not containing even their normal amount of fluid. Both gray and white matter when cut presents a shining, glistening appearance. Even to the naked eye the perivascular lymph spaces are dilated, giving rise to the *l'état criblé* of the French writers. Under the microscope both the perivascular and the pericellular spaces are dilated. An excess of fluid is common in the brains of the aged, in whom atrophy of the cortex has taken place, the slightly diminished space being filled with fluid. The same thing is occasionally seen in cases of prolonged anæmia. When any local loss of brain substance has taken place, and upon the shrinking of a clot, the space left is filled with fluid. These conditions, however, and also that known as internal hydrocephalus, it is not within the province of this paper to discuss.

Certain of the older pathologists gave a very important place to acute cerebral œdema, as for example, Magendie, Andral, Guersant, Hodgkin, Otto, and Bichat, while on the other hand, few of the late writers on neurology even name the condition. Obersteiner³ supposes that the intracranial lymph modifies the movements, cardiac and respiratory, of the brain. Richet and Salathé have shown that the amount of cerebro-spinal fluid has a decided effect upon the action of the cerebral arteries. Luys⁴ concludes that the presence of the intracranial fluid modifies the relationship between the cranial cavity and the intracranial mass, and he compares the brain and cerebro-spinal fluid to the foetus and the amniotic fluid. Grasset⁵ points out the conservatism of this fluid in meningeal inflammation. Ziegler⁶ describes the condition under the headings, œdema of engorgement, hydræmic dropsy, congestive œdema, and meningeal dropsy. As bearing upon the conditions under which cerebral œdema occurs, the following figures may be of

³The Anatomy of the Central Nervous Organs,

⁴Quoted by Grasset : *Les Maladies du Système Nerveux*.

⁵*Loc cit.*

⁶Text Book of Pathological Anatomy.

interest. Between five and six hundred records of autopsies made by Prof. Keirle at the Baltimore City Hospital were carefully examined, and the occurrence of cerebral œdema noted. All traumatic cases and cases of gross brain disease, tumor, hemorrhage, etc., were excluded.

Edema of the brain was found sixty-eight times; the effusion was most frequently confined to the large spaces, particularly the subarachnoid, more rarely the ventricles were involved. Edema of the brain without other important lesion was found six times; it occurred in nephritis fifteen times; pulmonary tuberculosis six; heart disease four; alcoholism six; affections of the liver four; typhoid fever three; malarial fever three, and once associated with pericarditis, pleurisy, puerperal fever, gastro-enteritis, starvation, and drowning.

It is common to find cerebral œdema, or, at least, an excess of fluid in the brain of those dying insane. Tuke¹ put the percentage at fifty-eight. Spitzka² calls attention to the dilation of the perivascular and pericellular lymph spaces in persons dying insane, especially in parietic dementia, epileptic and periodical insanity.

In regard to the conditions in which cerebral œdema is met with, the most important, according to the figures above, is nephritis. Here the œdema is probably the result both of the diseased vessels and the increased tension. It is quite possible, as Traube has suggested, that the uræmic symptoms, at least the milder ones, are due to the effused fluid. In pulmonary tuberculosis, perhaps, the most important factor in the production of the cerebral œdema, is the general lowered nutrition, with more or less anæmia of the brain, or even possible slight atrophy of the cortex and diminution in size. In heart disease and pneumonia the disturbance in the circulation, congestion, and want of compensation are the important factors, while in alcoholism and the fevers, the

¹ Dict. of Psych. Med.

² Manual of Insanity.

altered vessels, the state of the blood itself, and, perhaps, certain toxic influences predominate. We know little, either experimentally or clinically, as to the effect of improper innervation upon the production of cerebral œdema, but would expect to find its influence more potent here than in other parts of the body, since both nerve elements and blood vessels are so closely related to the lymphatic system.

We would not expect, *a priori*, any very special symptoms from cerebral œdema, since the involvement of brain tissue is so general. In some cases it would seem that the distended ventricles give rise to certain motor disturbances; in two of the cases reported in which the most important post mortem lesion was the distended ventricles, there was rigidity—one case general, the other of the muscles of the neck, retracting the head. It is possible that the overdistended ventricles press upon and irritate the basal ganglia, and thus cause the motor disturbance. What would be expected in these cases, cases of general acute œdema, would be a general disturbance of the brain as a whole. The amount of such disturbance would vary with and depend upon the quantity and nature of the effused fluid. Such symptoms are, in brief, general disturbance of intellection, occasional motor disturbances, and in severe cases circulatory, and respiratory disturbances, due to pressure upon the medulla.

In order to illustrate the change that has taken place in our view of the clinical aspect of cerebral œdema, the following quotations are given, one from of old, the other from the new school of neurology; Rosenthal¹⁰ says, "Acute cerebral œdema may cause sudden death by rapid increase of the compression and volume of the brain. It is a matter of experience, that in diseases of the heart and kidneys, in bronchitis and chronic tuberculosis, sudden fatal cerebral compression may develop. The patient suddenly loses consciousness, falls to the

¹⁰ Dis. of Ner. System.

ground, the muscles are relaxed, spincters paralyzed, reflex irritability considerably weakened, the contracted pupils reacting slightly or not at all. Delirium usually appears, respiration and deglutition become more and more irregular and difficult, and death occurs in coma at the end of a few hours or days."

Compare this what Gowers¹¹ says. In speaking of the excess of fluid in the brain of the aged, he says: "It was thought to be the cause of the symptoms, and the condition was termed "serous apoplexy," a disease that has no real existence, although the word is still sometimes to be heard at inquests, and to be seen on certificates of death." Both these statements may be regarded as extreme. While on the one hand it is more than doubtful whether acute cerebral oedema ever presents such a distinct clinical picture as the one drawn by Rosenthal, yet, on the other hand, Gowers is rather inclined to deny it any existence, at least so far as its clinical appearance goes. It is highly probable that in a certain proportion of the older observations on this subject, softening from embolism was confounded with serous effusion, and this is rendered the more likely if the statement of Huguenin¹² can be accepted, namely, that effusion, under certain circumstances, is very apt to occur if there exists any disturbance of the intracranial circulation. Most observers who have followed the clinical history and studied the post-mortem appearances of such diseases as nephritis, pneumonia or typhoid fever, will, I think, admit that very often the cerebral symptoms seen in these affections are due, in part, at least, to the abnormal quantity of serum present. Apart from its association with other diseases, cerebral oedema, as has been shown, may occur independently, and may cause death. Reasoning from our knowledge, both of the cause and effect of oedema in other parts of the body, the wonder is that cerebral oedema is not a far more frequent and serious condition than it would

¹¹ Dis. of Ner. System.

¹² *Lancet*, Sep., 1889.

seem to be, and this can be accounted for only by taking into consideration the very remarkable lymphatic system of the central nervous organs.

The following conclusions would seem warrantable ;

1. Cerebral œdema should receive recognition, both from the clinical and pathological standpoint.

2. Œdema of the brain follows the laws of œdema elsewhere in the body, with the important exception that these laws must of necessity be considerably modified by the anatomical arrangement of the lymph spaces of the brain and its membranes.

3. The effused serum may exert injurious mechanical pressure, and also offers occasion for toxic influences.

4. Cerebral œdema would be a much more common and serious affection, were it not for the free communication which exists between the various lymph spaces, as emphasized by the decided symptoms produced when these cavities are isolated by inflammatory adhesions.

Cauterization in Tic Douloureux.—M. Jarre reported, before the Academie de Médecine, ten cases of very severe tic, that were cured by cautery (*Journal de Médecine*, for October, 1893). He thinks that in a great many of the cases the pain is due to a cicatricial lesion of the nerves in the alveolas processes, and that the only rational means of relieving the atrocious suffering is to resect down to the painful point and cauterize it. All of the diseased tissue is to be cut or ground away, such as necrosed bone and so forth, but if the tooth has been drawn then the mucous membrane is to be opened down through the periosteum to the bottom of the alveolus, the bone freshened up and the cautery point introduced. The results have been so good that the author recommends highly this procedure for the relief of one of the most distressing of diseases.

B. M.

PRESENT HOSPITAL CARE OF THE INSANE.¹

By SAMUEL B. LYON, M.D.,

Medical Superintendent of Bloomingdale Asylum.

NUMERICALLY the insane exceed any other class of sick persons, and this is particularly true of this country and age, because many foreign insane persons, who properly belong to other countries, have come here voluntarily, or been sent by the authorities of their respective homes, who have not scrupled to shift their rightful burdens to the shoulders of others, and partly because the greater protection which the insane enjoy in our many institutions for their care, than they do outside, gives them a longer lease of life than formerly. The insane of the State of New York, of which the State takes cognizance, exceeded in 1892, 17,000, and soon will reach 20,000 in the nature of events. This is exclusive of a great number which must be at home or at large in the community. With such a large fraction of the population insane, and for the most part dependent for their guidance and support upon others, we ask ourselves from time to time what is being done for them, and how it is accomplished, and we should individually approach the question in perfect frankness, and free from prejudice.

The 17,000 insane persons in State custody,—for all institutions in the State acknowledge its authority, and comply with its regulations—are quartered in nine State hospitals, two county establishments and about twenty private or corporate institutions. These various institutions and homes are as widely separated as are the separate sections of the community to which they minister, for it is a well recognized and creditable fact that the

¹Read by title at the American Neurological Society, Washington, D. C., May 29 to June 1, 1894.

families who have insane members which they confide to the care of others, do not usually lose their interest in, and affection for such afflicted members, but want to see them from time to time, minimizing the separation by frequent visits. For them to be able to do this institutions must be and usually are situated so that the journey to them is not too long nor too expensive for the average family and if the State errs in its present scheme, it does so, I believe, in making the districts too large, the number assembled in each hospital too great, and the distances from the borders of the districts to the hospitals too long, and the journey too costly to the friends of the patients confined in them.

The systemized care of the insane in any public manner and as a recognized duty of the State at large is so new, and its development is still so much a matter of experiment, that I think it will be admitted, that it is not so strange that there are some defects, as that so much is done and done fairly well.

As the great mass of insane patients who are not free agents are in hospitals controlled directly or indirectly by the State, it is wise to ask how these hospitals for their care are organized, and what they accomplish. The disease of the mass of the inmates of all these thirty or more hospitals has become chronic, and they are hopelessly insane. Many of them have outlived the families they left, and know no home and few friends outside of the institution they inhabit. Many of them, if sent away from the shelter of the hospitals would have to resort to the meagre comfort of the almshouses.

In a smaller proportion of the inmates of hospitals for the insane there remains a hope of recovery, and for these nothing in the hospitals which can help toward this result is considered too good, and no attention of physicians or nurses too constant, observing or self-sacrificing. I believe this is generally true, with but very few discreditable exceptions.

The ability of hospitals to care for the insane must vary considerably as their resources are greater or less,

They cannot be conducted even on the most economical scale except at large expense for the mere necessities of life, viz.: food, heat, clothing, etc., and for the paid employees, on whom the work and responsibility fall, but whatever may be the pro rata rate of expenditure permitted by the State, county, city or other authority, which controls the hospitals, it is always the sick, the recent and the hopeful cases who get the most that such a pro rata will permit. If economy is practiced, it is towards the chronic insane, whose status is fixed, and whose prospects are not endangered by such economy.

The humanity and justice of taking people by force into custody, and then depriving them of all but the smallest modicum of comfort, I will not discuss before an assemblage composed of persons whose individual mission it is to lift the burdens, and ease the distresses of humanity.

For the proper segregation of the inmates of hospitals for the insane more space is required than can be spared in the close confines of cities. Land is too valuable; the real estate man and the politician do not look with favor on the setting aside of considerable tracts of land for institutional purposes, through which streets cannot cross, nor main arteries of travel and business pass, and so the hospital in the beginning is located in a suburb, and when the suburb is in demand for residences or business, the hospital must pack up and go further away from the busy haunts of men.

The organization in England and this country of such hospitals as we are considering is based on an authoritative board of good citizens of local prominence, and an executive staff of physicians of good character and full average attainments. In New York these must be examined by a State board before entering its service. The physician's constant experience in contact with insanity and the insane gives him a practical as well as a theoretical familiarity with insanity, and his patients' not infrequent ailments, other than their insanity, also give him general practice, and tend to keep him

in all round touch with medicine, as does not perhaps the daily experience of the general practitioner in this age of specialists, or of the specialist who now devotes perhaps little time to general medicine. Hospital physicians, as a rule, do good and conscientious work, and they supplement their large personal experience with the insane by reading and assimilating so much of the almost boundless literature of the subject, as is within their capacity.

What are the results of the present mode of treating the great mass of the community when they become insane? The mass of the insane, as the mass of men in general, are poor. They have to take what their more fortunate fellow men will give them. How have these unfortunates fared in the hospitals of the State?

Insanity is often founded on natural defect. Heredity plays no small part in its genesis; imperfect development of the originally defective nature makes the case still more abnormal, and if the twisting does not occur during the developmental period in their lives, later the stress of life is too great for their feeble powers of resistance, and too often precipitates the result which from the beginning was imminent. With such defective foundations to build upon in a host of cases, with the other defectives, the idiots, imbeciles and the epileptics counted in the statistics, perhaps the percentages of recoveries and improvements realized from hospital treatment will compare favorably with those obtained in other forms of disease, and the statistics of hospitals for the insane with those of other specialized hospitals.

In therapeutical treatment, the hospital physician is constantly ready and anxious to try anything which promises beneficial results, and to give his patients the benefit of the latest discoveries in medicine. In the control of his patients in respect to their diet, habits, exercise and hygienic surroundings he generally has an advantage over the general practitioner. Both he and the patients enjoy a decided benefit from his exemption from the necessity of subduing noise and excitement,

in the latter, often to relief the annoyance of the neighbors rather than to help the insane man.

How far have hospitals for the insane fulfilled an educational duty? The insane hospitals are situated from the necessities of the case out of the heart of the town, and rather far from the student, whose moments are too much occupied to spend many of them going to and from remote hospitals. When, however, the student can find the time, he is always certain to find someone glad to instruct him and to show him illustrative cases. The physicians of many hospitals lecture regularly at the medical schools of their vicinity, and clinical assistants in many institutions get the sort of instruction, combined with continued observation of cases, which gives them the best results in the study of insanity, when this practice is founded on good preliminary knowledge.

Many hospitals are, in the nature of their cleintage, as well as from their location, unsuited for schools for instruction in mental diseases; but the great city institutions are exempt from this disability. The poor, perhaps unfortunately, must furnish the materials for the study of disease in its progress, as they furnish the material for pathological investigation. The rich or moderately well off will not permit themselves or their friends to be exhibited as samples of disease for the illustration of lectures, or their bodies to be used for the study of pathology. In all countries the great public charity hospitals use their patients as subjects for the education of new doctors. Our own great hospitals containing thousands of insane persons, who exhibit every phase of the disease, are too little utilized, perhaps, and would furnish the best possible field for its study. Reception hospitals close to the schools, where new cases of the disease could be seen, and lectured upon, and watched for a time, would be the best possible clinics for the medical student. Enough of such material passes through the insane pavilion of Bellevue Hospital in New York City, if fully utilized, to supply as useful and

famous a clinic as Meynert maintained in Vienna. If the cities of New York, Boston and Philadelphia would maintain, in connection with their great public general hospitals, reception hospitals for the poor insane, of suitable size and character, where patients could be kept long enough to be carefully studied by capable experts, and observed by students, and where many of them might even recover from transitory states of mental disturbance, and if these cities would also maintain good working laboratories where, free from politics or the struggle to live, capable pathologists could give themselves entirely to investigation and instruction in relation to the morbid processes in insanity, we should take a long step forward toward gaining light on the dark problems of psychopathy, and would cease to deserve the charge sometimes made of wasting opportunity, and lagging in the rear of the march of discovery of the essentials of the disease and the means of its eversion or cure.

Original investigation, I believe, has been generally conducted most successfully by a leisure class, that is, by men who by their own means, or by the support of a liberal government, are freed, not only from the daily duty of getting bread, but from the ceaseless interruptions of routine duty. The paradox that "the busiest men have the most time," is only true of the exceptionally capable, but is not so of the average man. Foreign universities liberally support able men who give themselves principally to teaching and investigation, and with even this great command of their time, as we look over the field of medicine, we are surprised to see how comparatively few really new facts, even such specialization of work has brought to light. A discovery or a surmise here and there, confirmed and carried a little further by another few, several lives often being required apparently for the establishment of one real fact, would seem to be the usual history of progress in any branch of science. Is it strange that the illusive processes of mind are still subjects of speculation? The mechanisms of digestion, of

inflammation, of transmission or interruption of sensation are in a measure capable of demonstration; but the mechanism of thinking, whether it be rationally or irrationally, is hidden and mysterious. The mind does not lay itself open to instruments of precision. When we do see the instrument of mind it is inactive, dead and inert, and some debris of dead cells, and some loss of bulk may be the only difference we can as yet detect between the brain of the clearest, and the most perverted intellect. The effects upon mind of structural changes in the nervous system, and more important perhaps, the changes in the quality and quantity of the fluids which invest and permeate it, offer a wide field for the life-work of the best talent, in their elucidation, for years to come. Such investigations require certain qualities of mind, and a definite command of time and material, for very marked and valuable results, and should be prosecuted in conjunction with our great hospital systems.

New York State, with its nearly twenty thousand insane wards, should take a broad and liberal view of its duty toward science in its various departments. It builds or furthers costly institutions for the natural sciences and arts; it expends vast sums on public buildings, and in rewarding the labors of their occupants; should it not go a step further and maintain laboratories for the systematic and continuous investigation of the mysteries of disease, which concern the public individually and collectively, and to which every individual in the community must ultimately succumb? A well-equipped laboratory for studying insanity at a centrally located State hospital, and others at our great city institutions for the insane, with capable investigators, well-supported, and able to devote their entire thoughts and energies to these investigations, would give valuable results to science, far beyond what can be expected from the sporadic efforts of practitioners, who in their early days are zealous and active in their pathological, microscopic or other scientific work, but who later, when success has brought ample occupation, as well as compensation, find

their time too fully occupied to keep up their earlier studies and investigations, in the same fruitful way that they may have done in their earlier days. Such laboratories would be post-graduate schools of the most useful kind, where the medical graduate, with a bent toward investigation, rather than toward routine practice, could carry his studies on without limit as to their extent. Older countries know the value of differentiation in labor. Our own country is showing in spots that centers of post-graduate study, when the student is separated from the struggle for existence, are coming to be a *sine qua non* to essential progress in discovery. Such opportunities as the Johns Hopkins and the Clark University laboratories afford, invite earnest and protracted work beyond the preparatory field, and they must come more and more to be the workshops of men, somewhat separated from their fellows, where long and earnest investigation will bring to light such facts as will build up, when fitted each in its proper place, the permanent structure of medical knowledge.

These few and imperfect observations are intended to slightly indicate the defects which may exist, the direction which new efforts should take, and the hope of improvement which we may reasonably entertain, if we duly appreciate the limitations as well as the scope of individual effort, and that specialization is the tendency of the age, in medicine as well as in all other departments of science.

A Case of Amyotrophic Lateral Sclerosis.—

Prof. D. Capozzi, of Naples, presented a typical case before the students at the Ospitali Degli Incurabili and lectured on it.—*Gazetta Degli Ospitali*, No. 150, 1893.

F. H. P.

Asylum Notes.

ST. PETER STATE HOSPITAL, ST. PETER, MINN.

To the Editor of the Journal of Nervous and Mental Disease:

SIR:—I had the pleasure of hearing the address made by Dr. S. Weir Mitchell, before the American Medico-Psychological Association, in Philadelphia, and I have read with much interest the letters from prominent neurologists, accompanying the address as printed in your journal.

While I am willing to admit the abstract truth of the criticisms, made in both the address and the letters, I am compelled to say that nothing new has been brought forward; and not only that, but everything demanded in the address, has in more practical form been clamored for steadily, by hospital officers, during the past ten years. While not wishing to excuse or explain away, any of the laxness of the medical officers of hospitals for the insane, and with a full appreciation of the deadly inertia, so apt to overcome those connected with this work, I still believe that our critics have failed to recognize what must be apparent to them in their own work, and that is, that we cannot move faster than public opinion will let us. The public can appreciate the housing, clothing and feeding of the insane, but not their medical treatment; and this, strange as it may seem, I believe to be the fault of the medical profession at large, for they mould public opinion in such matters. They, as well as the public, have so long been accustomed to looking upon these institutions as asylums, in which to hide away and care for the unfortunate members of their families, whose existence was to them a mortification, and whose condition was a stigma affecting their social status, that it is, and will be a Herculean task to get the body politic to look upon hospitals for the insane in any other light, and to give as cheerfully toward the development and betterment of the medical work, as they

now do toward beautifying the grounds, and the amusement and instruction of chronic patients.

In an address before the State Conference of Charities and Corrections, in Minneapolis, in January, 1894, I made the following statement, and my experience is the warrant for its truthfulness :

" Indeed, until within the last twenty-five years, these unfortunate people have been looked upon by the rest of the world, very much as the leper was looked upon by the Jew, as one beyond the pale of human sympathy and interest, an object of horror and dread, to be pitied in an indefinite sort of a way, but to be avoided and shunned at all times. This feeling on the part of the public has reacted upon the institutions themselves, making the habit of seclusion and the avoidance of public interest and investigation a part of their management. In fact, until quite recently, the medical men in charge of these institutions, or engaged in the care of the insane, have been looked upon very much as one would be who had gone to live in a community of lepers, and even at this day, it is quite common to hear expressions of curious sympathy and incredulous concern given to those who take up this work. As a result, the physician working in an institution for the insane, like the patients themselves, is in a measure, looked upon with dread and suspicion by the public generally, and too often by the friends of the patients themselves. He, too, has been shut out from the interest and sympathy of his fellow-men, his work ignored and misjudged by those whose only knowledge of hospitals for the insane and their work, has been gained from the picture drawn by the novelist, of the private asylums in England a hundred years ago ; and to this day, the belief is quite common that the officers of the institution are in collusion with the relatives of the patients, to keep them hidden away from the world, the victims of persecution and neglect."

It does not seem to me that Dr. Mitchell's claim that the insane could be treated to better advantage, out of, than in, hospitals, is consistent, because, if so, the same rule would apply to general hospitals, and with more force, for the conditions necessary to the treatment of general disease, can be better supplied in a private house, than those necessary to the treatment of insanity. I know of no more abject sight than the effort to care for a case of acute insanity in a general hospital, espe-

cially if the patient is violent. Let me draw a picture of what I have seen, as Dr. Mitchell has done. A small ill ventilated room in an out-of-the-way place in a general hospital, a woman suffering from maniacal excitement following the puerperium. She is tied to the bed with sheets and sometimes robes; her hair disheveled, or matted over her face. The patient writhes and twists, screams and shouts, until the interne comes in and with his hypodermic syringe proceeds to relieve her excitement. If the first dose be not sufficient, he goes on relieving until the poor woman, saturated with opium, bromides, chloral, hyocine, sinks into a paralytic lethargy. I would ask of any one familiar with them, if such a sight is ever seen in a well-conducted hospital for the insane? I quote again from the address referred to: "While I do not doubt but that cases of insanity can be successfully treated at home, yet I believe that those cases that recover outside of an institution, would recover more quickly and fully in one. You do not hesitate to take a person suffering from bodily disease to a general hospital to be treated, and this is being more and more commonly done, because the public has come to know that the systematic care and treatment received in a hospital, where all appliances exist for such purpose, is much better and more apt to be successful than any care and treatment that can be applied in an ordinary private house. How much more is this true in the case of insanity, where the very nature of the disease interferes with the relation of the patient to those around him, and the changes in his character and conduct are based upon and influenced by beliefs concerning his relatives and friends." Besides, so far as my personal experience and observation go, our most successful cases have been those who have been sent to us after the outside practitioner has failed to do anything for them; and our first and most arduous task has been to get rid of the disastrous effects of drug saturation, so commonly present in patients treated outside of hospitals, where the necessity of keeping the patient quiet has overshadowed all remedial efforts.

There is nothing mysterious about the moral effect of the disciplinary atmosphere of a well-conducted institution! Every physician really familiar with insanity, knows that in its early stages, the most conspicuous conditions are abnormal self consciousness and loss of self-control. Nothing removes these manifestations more

quickly, than complete change of environment and the substitution of outside control for that which the patient has lost.

So far as the letters appended to the address are concerned, most of them are too vague and general in their criticisms to be answered. However, I realize that they, as well as the address, were kindly meant, even where they do show an entire want of accurate knowledge of the management of hospitals for the insane and the medical work done in them. How much better it would be for our hospitals and their future medical evolution, if our neurological and general medical friends would recognize that what we are really suffering from is, overcrowding, too little intelligent supervision, and too much uninformed criticism! Then the energy expended would do some good, and your voices and influence would enable us to throw off the chains which uninformed public opinion now hampers us with.

It is still a moot question as to whether an institution for the treatment of the insane would be better located near a large city; but so far, those so located and having the advantages supposed to accrue from the services of the several varieties of specialists, do not show a greater percentage of cures among recent cases, or more advantageous surroundings for their chronic cases.

Dr. Mitchell rightly claimed the privilege of being frank in his criticism. I have claimed the same privilege, and speak from the standpoint of and for the State hospitals. I will ask our critics in closing, if they are not to some extent afflicted with the same narrowing of vision, of which they accuse us, and beg leave to close with another quotation from the address I have twice before drawn upon: "I firmly believe that it is only as the medical work of our hospitals becomes the predominant element in them, and therefore the public comes to look upon insanity as a disease, will the dread and suspicion as well as want of confidence in our institutions and their management disappear."

H. A. TOMLINSON, *Superintendent.*

Periscope.

EXCERPTS WILL BE FURNISHED AS FOLLOWS:

From the Swedish, Danish, Norwegian and Finnish:

F. H. PRITCHARD, Norwalk, Ohio.

From the French and German:

L. FISKE BRYSON, M.D., N. Y.

BELLE MACDONALD, M.D., N. Y.

PH. MEIROWITZ, New York.

R. K. MACALESTER, M.D., N. Y.

From the Italian and Spanish:

WILLIAM C. KRAUSS, M.D., Buffalo, N. Y.

From the Italian and French:

E. P. HURD, M.D., Newburyport, Mass.

From the English and American:

A. FREEMAN, M.D., New York.

The Editor will not accept as ORIGINAL ARTICLES and CLINICAL CASES those that have appeared elsewhere.

Authors are requested to make none but typographical corrections on the proof sent to them. The manuscript must represent the final form in which the article is to be printed.

PHYSIOLOGICAL.

The Value of Sugar and the Effect of Smoking on Muscular Work.—Vaughan Harley, M. D., M. R. C. P. (*Journal of Physiology*, March 22, 1894). The periods of digestion, as well as the kind of food taken, have a marked influence on voluntary muscular energy. Irrespective of the influence of food there is a periodical diurnal rise and fall in the power of performing muscular work. More work can be done after than before midday. The minimum amount of muscular power is in the morning about 9 A. M. The maximum about 5 in the afternoon. Regular muscular exercise not only increases the size and power of the muscles, but has the effect of markedly delaying the approach of fatigue. The amount of work performed on a diet of sugar alone is almost equal to that obtained on a full diet, fatigue, however, setting in sooner. In fasting, large quantities of sugar (500 grams) can increase the power of doing

muscular work during 30 voluntary contractions from 26 to 33 per cent. While the total gain in a day's work may be 61 to 76 per cent., the time before fatigue sets in is also lengthened. The effect of sugar is so great that when added to a small meal it can increase the muscular power during 30 contractions from 9 to 21 per cent., and the approach of fatigue is at the same time retarded. When added to a large mixed meal sugar can increase the muscular power of 30 contractions 2 to 7 per cent. The increase in total work is 8 to 16 per cent., and a marked increase in the resistance to fatigue is shown. Two hundred and fifty grams of sugar taken in addition to a full diet increases the day's work. The work accomplished during 30 voluntary muscular contractions shows a gain of from 6 to 28 per cent., the total day's work giving an increase of power 9 to 36 per cent., and the time before fatigue sets in is lengthened. Moderate smoking, although it may have a slight influence in diminishing the power of doing voluntary muscular work, neither stops the morning rise, nor, when done early in the evening, hinders the evening fall. Sugar taken early in the evening is capable of obliterating the diurnal fall in muscular power that occurs at this time, and increases the resistance to fatigue.

A. F.

A Study of the Reflexes in Thirty-four Epileptics.—Doctor Arthur Donaggio, of Reggio, publishes in the *Revista Sperimentale di Freniatria e di Medicina Legale*, Fas. i., 1894, the results of his examination of the reflexes, muscular force, and measurements of the extremities in thirty-four cases of epilepsy.

In the interval he found the patellar reflexes exaggerated in fifteen, medium in eight, diminished in seven and absent in two cases. There existed in the fifteen cases a difference of exaggeration, being stronger on the right side in ten, stronger on the left side in five cases. The tendo-Achilles reflex in twenty-seven cases was exaggerated in nine, medium in thirteen, diminished in three, and absent in two cases. The bicipital in thirty-one cases was exaggerated in eight, medium in twelve, diminished in nine, and absent in two cases. The olecranon reflex was exaggerated in six, medium in nine, diminished in nine, and absent in seven—of thirty-one cases examined. The abdominal reflex in thirty-two cases was exaggerated in three, medium in three, diminished in eleven, and absent in fifteen cases. The cremasteric reflex in twenty-five cases examined was exagger-

ated in two, medium in eight, diminished in seven, and absent in eight cases. Pupillary reflexes—examined in reference to pain reacted promptly in ten cases, medium in nine, slowly in four, and not at all in seven cases, of thirty examined. In regard to the light reaction, prompt in five, medium in thirteen, slowly in twelve cases. In reference to the inequality of the pupils, the author found in four cases only a slight inequality. W. C. K.

PATHOLOGICAL.

A Case of So-called Amyotrophic Lateral Sclerosis.—By Prof. H. Senator (*Deutsch. Medicin. Wochenschr.*, 1894, No. 20).

Leyden in opposition to Charcot, has maintained that amyotrophic lateral sclerosis is not a disease *sui generis*, that this affection is not to be differentiated from progressive bulbar paralysis, and that the spastic phenomena upon which so much stress is laid, are of secondary importance and are not to be referred to degeneration of any particular set of fibres in the white substance of the cord.

The case of Senator seems to substantiate Leyden's view. It is that of a widow fifty-seven years of age who presented the characteristic picture described by Charcot as amyotrophic, lateral sclerosis. There were paralysis of the upper and the lower extremities, contractures, stiffness, increased reflexes, ankle-clonus, marked atrophy of the hand muscles, paresis and atrophy of the tongue and lips, speech inarticulate, dysphagia, and other symptoms belonging to the disease. Psychic functions, sensibility, and the action of the sphincters were undisturbed. After a duration of five years the patient died of bronchopneumonia.

The well-hardened cord showed the following changes:

a. Marked atrophy of the ganglion cells in the anterior horns of the cervical and the dorsal segments. Hemorrhages in the cervical enlargement. Clarke's column unaffected. About this column there are round areas where the tissue has fallen out. Below the middle of the dorsal region the atrophy diminishes, and disappears entirely in the lumbar region.

b. The vessels of the entire cord are filled to excess with blood, but their walls are normal. There are also numerous recent hemorrhages both in the white and in

the gray substances, particularly in the neighborhood of Clarke's column. Some older hemorrhages are apparent.

c. Areas of softening, only, however, in the gray substance, from which the tissue has fallen out. Two such large areas exist in the cervical and lumbar enlargements on either side of the central canal, forming cavities, around which the tissues are intact.

The central canal exhibits no changes. In a few of the posterior roots of the lumbar segments, the medullary sheaths appear to be swollen; the axis-cylinders are preserved. The roots of the cervical and dorsal regions show no alterations.

To sum up, the important changes are simple, non-inflammatory atrophy of the ganglion cells in the anterior horns of the cervical and the dorsal regions, recent hemorrhages in the entire cord, and areas of softening, probably due to the hemorrhages.

How does this explain the clinical picture. The muscular atrophy of the upper extremities, as well as the atrophy of the lips and tongue, are to be traced to the atrophy of the cells in the anterior cornua and in the medulla. The fact that the anterior roots presented no or only slight atrophy is not striking in view of similar recent observations.

The significance of the hemorrhages is more difficult to explain. As these were recent or at the most but a few weeks old, the characteristic symptoms which existed for years are not to be referred to them. The hemorrhages are to be regarded as terminal phenomena traceable to the progressive cathecia. A hemorrhagic diathesis is not to be considered, as neither during life nor after death were hemorrhages in other tissues discovered.

The most striking fact was the entire absence of an expected degeneration in the lateral pyramidal tracts, to which the stiffness, contractures and exaggerated reflexes were referred. Senator believes with Leyden that the lateral sclerosis is always secondary, never primary (excluding hereditary cases), and dependent upon other changes in the spinal cord or brain.

If pathological changes existed in the brain to account for the symptoms in the lower extremities, the surprising fact thus remains that there was no descending degeneration to be found.

This case incontrovertibly proves that the clinical picture of amyotrophic sclerosis may obtain, without

lateral sclerosis, and that the disease is not to be sharply separated from others, *i. e.*, is not an affection *sui generis*. Senator recommends terming such affections atrophospastic paralyses of spinal or bulbar, or bulbo-spinal origin. P. M.

Facial Monoplegia.—*La Médecine Moderne* contains an interesting microscopical study by M. Parisot on this subject. He describes a case of facial monoplegia, the only muscle involved being the depressor of the left angle of the mouth, where the lesion was confined to a certain portion of the right internal capsule. The paralytic symptom had persisted for three months, until the patient died with broncho-pneumonia. Autopsy disclosed a tumor about the size of a pea, occupying the middle of the superior digitation of the right frontal convolution. Successive sections through this region revealed about the middle portion of the brain an old hemorrhagic cicatrix through the anterior part of the external capsule extending transversely across the lenticular nucleus to its posterior segment. The point of degeneration was confined to the inferior lay of the right cerebral peduncular fibres. This instructive observation demonstrates that the fibres of the facial emanating from the cerebral cortex, and destined for the enervation of the inferior part of the face, occupy in their passage a line through the internal capsule. That part of the internal capsule which is entirely posterior to the geniculate fasciculus passing through the floor of the cerebral peduncle corresponding to a region situated between the internal and middle peduncular fasciculæ. B. M.

Study of Endocular Circulation and the Pupillary Changes in Hypnotic Sleep.—Prof. S. Grosso recently read a paper in the Medico-chirurgical Academy, of Naples, on this subject. Experimenting on two individuals in the passage from hypnotic sleep to the waking state, and vice versa, he has noticed a sensible dilation of the pupil, remaining thus during the hypnotic state, losing the faculty of reaction and accommodation, to regain it on passing over into the waking state. The suggestion of cold is followed by a dilatation of the retinal vessels and hyperemia of the fundus. A suggestion of heat determined a restriction of these vessels and consequent anemia of the ocular fundus. These conditions disappear on returning to the normal. Suggestions of pain and joy determine respectively, relative anemia and hyperemia of the fundus. In the

second subject contrary results were obtained. He explains these diverging results by referring to the fact that various drugs produce varying effects, *i. e.*, either toxic or therapeutic results, in different individuals. He thinks that these experiments will aid to explain, scientifically, sleeping and waking states. This work is the first of its kind.—*Gazetta degli Ospitali*, No. 150, 1893.

F. H. P.

Ocular Changes and Visual Disturbances of General Progressive Paralysis.—Prof. S. Grosso reported before the Medico-chirurgical Academy of Naples the results of his investigations in forty-four cases, he studying, especially, the condition of the conjunctiva, that of the pupil, the extrinsic muscles, the vision in the various stages of the disease, color perception, the field of vision and the ophthalmoscopic findings. He met with difficulty in symmetric ophthalmoscopic examination, both from ocular ataxy and the mental state of the patients. In order to exclude all sources of error, he examined all the patients under the same conditions of light, etc.

In 21 out of the 44 he observed a conjunctival catarrh which aggravated with the general paralysis and was characterized by bluish discoloration of the conjunctiva, absence of ciliary limitation and a pronounced resistance to therapeutic measures. As to the pupil, he found it equal in diameter in 27, in 13 unequal. In 25 it reacted well to light and accommodation. In 15 it reacted feebly to light and not at all to accommodation. In 1 case he noticed a maximal diameter of 4 mm. and a minimal one of 1 mm. In 35 individuals it oscillated between 2-5 mm, in 5 it was less than 2 mm. In general, the contraction progressed with the general disease. With atropine, there was incomplete dilatation in 2 from rigidity of the tissues, in 2 partial, in 3 none; complete in 33 and unequal in 11. Nothing abnormal as to the extrinsic muscles. Vision was normal in 7 individuals in both eyes, in 5 in one eye alone; but in all it diminished with the advance of the disease. Color perception suffered with the progression of the paralysis, first the perception of violet disappearing, then blue and, lastly, that of red. In general, it is restricted, concentrically, for white and colors. Ophthalmoscopically, there was remarked a certain degree of papillary atrophy, preeminently, in the last stages. He treats very fully of the literature.—*Gazetta degli Ospitali*, No. 150, 1893. F.H.P.

Anatomico-Pathological Alterations and Morphological Changes in Insanity.—Prof. Antigono

Raggi states that, at first, it is difficult often to find actual pathological alterations. The more chronic a mental disease, and especially where the disease passes through consecutive phases or follows acute affections, the better are they to be observed. Morphological changes, especially of a degenerative character, are found in those mental diseases ascribed to psychic degeneration. Acute affections are represented by circulatory disturbances of the brain and its membranes, active or passive hyperemia or anemia, sometimes by appreciable histological alterations of the nervous tissues, neuroglia and vessel walls. In psychopathies with a degenerative base, dystrophic changes prevail. The cranium also is here affected. In degenerative states, as idiocy and imbecility, microcephaly is frequent from early ossification of the sutures, though it may be also due to irregular or defective development of the brain itself or be partial as in the degenerated insane, where it is chiefly limited to the anterior part. The contrary condition, macrocephaly, is due either to encephalic hypertrophy or hydrocephalus. Mental affections after cerebropathies present important anatomico-pathological alterations of the greatest variety and importance. They may have their origin in the bony skull itself, as from caries or necrosis, thus following ear affections, where, especially in scrophalous subjects, the inflammation of the internal ear is transmitted to the dura, with thrombosis and often inflammation of the membranes and the brain itself. Pachymeningitis is important in producing mental affections, either following traumatism or osseous affections, or being internal and directing involvement of the functions of the cortex and inducing general involution or atrophy. The cerebellum rarely participates in the anatomico-pathological changes of insanity, though in the progressive paralysis of the insane it is profoundly affected. In psychoses of long duration the hyperemia and inflammation are prone to lead to the formation of osteophytes, above all in senile and puerpural insanity. The arachnoid is here rendered thicker and opaque, and often adherent to the dura, the Pacchionian bodies are enlarged along the interhemispheric fissure. The pia mater is thickened and congested, and sometimes adherent to the cortex, particularly to that of the vertex and frontal lobe. In cere-

bral atrophy, after inflammatory, necrobiotic or simple affections, partial softening may be the base of the mental weakness. The spinal cord, peripheral nerves, ganglia and the great sympathetic may be altered. Spinal affections are chiefly secondary, and especially to cerebropathies, properly speaking. Various observers have noticed associated lesions of the peripheral nerves. Affections of other organs may either accompany or cause various psychoses. Crupous pneumonia is not infrequent, but is often unobserved. Pulmonary gangrene may also be quite frequently seen. Phthisis often complicates, cardiac affections, generally valvular, are very often seen in necroscopies; the digestive tract is altered and sometimes may be the point of departure of depressive and hypochondriac mental diseases, accompanied by anesthetic sensorial aberrations which are significant. Catarrhal and ulcerative affections of the colon are frequent, and often epidemic in asylums. Diseases of the genito-urinary tract occupy an important place in insanity. The skin, from deficient hygiene, presents important changes, among which are the osteomatoma of paralytics. The bones are especially fragile; neurotic osteomalacia. The morphological changes in the skeleton correspond to alterations of the organism which may represent anomalies of development, stigmata of a constitutional disease, deformity of accidental origin, traumatism and physical stigmata of degeneration. —*Gazzetta degli Ospitali*, No. 155, 1893. F. H. P.

A Contribution to the Study of Cephalgia.—As headache was present in plethora and anæmia, in febrile and afebrile diseases, and, in fact, almost every abnormal condition, an explanation of the phenomena had evoked considerable study. So far scientific research had not elucidated the mechanism of this morbid symptom, but this fact did not mean that there was not some satisfactory reason for the same symptom being produced in diametrically opposed conditions, such as hyperæmia and anæmia, for example. The history of a case was given which presented the following points of interest: during an attack of headache the patient's cutaneous blood vessels were much dilated, making the face very red, presenting the phenomena described in France as "femme autographique." It appeared pretty much as an attack of urticaria from indigestion. After several paroxysms of the headache the hair fell out in spots, resembling alopecia areata. New hair grew in, however,

over the areas, but new spots of baldness appeared after each attack. Careful investigation revealed no cause for the headaches.

The author, Dr. S. Vermel, *Revue Générale de Clinique et de Thérapeutique*, was inclined to attribute the disease to a hypersensitive condition of the sympathetic nerves controlling the peripheral vessels of the cranium and brain; in other words, an angio-neurosis. He thought that the redness of the face and sclerotics, and the epistaxis, which was present during an attack, confirmed this opinion. It had been previously affirmed that pain in the head, was caused by some irritation to the cortex, now, while pain was an indication of irritation somewhere in the cranium, the author was not satisfied as to the cortex being the seat of the trouble. Tests on the cortex gave, locally, simply a hallucination of pain, but that real pain was exhibited on some part of the body, had been repeatedly demonstrated. It was definitely made out that the source of the attack of cephalgia was not due to local irritation of the cortex, but to changes in the meninges. The dura mater was richly supplied with ramifications of the trigeminus and vagus, and it was to the dilatation of the vessels in this region causing intracranial pressure, that the pain was due. This vascular dilatation extended to the minute blood-vessels in the region of the pituitary body, rupture of which, gave rise to the epistaxis from which the patient suffered during an attack.

This explanation might suffice to account for the headache in all disease where there was a hyperæmic condition, but did it answer for anæmic states? The author answered in the affirmative. He said that the change in anæmia was a qualitative and not a quantitative one of the blood, and that the quantity of fluid in the vessels remained the same. In the presence of veritable anæmia, from abundant depletion of the system, as from hemorrhage or cholera, the conditions were different. In the anæmia coincident with neurasthenia, hysteria, chlorosis and so forth we had a condition, as far as quantity was concerned, the same as that of hyperæmia. In anæmia the condition was very favorable to dilatation of the blood vessels, producing exaggerated intracranial pressure. It was in just such cases that the vasomotor centres were very prone to excitation and local hyperæmia.

In summing up, the author stated that the seat of

pain, in headache, was always in the dura mater and not in the cortex. That the pain was provoked by compression of the dura mater produced by increased intracranial pressure. That this was true of all headaches, occurring under the following heads; all neuroses, diseases of toxic origin, and those of mechanical origin, as diseases of the brain or meninges, constipation, etc., and lastly those of reflex origin.

B. M.

On the Histology of Disseminated Sclerosis of the Brain and Spinal Cord.—By Michael Popaff (Neurologisches Centralblatt, No. 9, 1894).

In his researches on the nervous tissues of four cases of multiple sclerosis, Popaff employed a new method, involving three stains, namely, acid ruby, orange, and hæmatoxylin. By means of these stains, the axis-cylinders of the medullary nerve fibres were colored red, the medullary substance assumed a deep yellow, whilst the neuroglia and the sclerotic portions took on a violet hue with a reddish tinge.

The methods ordinarily employed are pronounced defective and have led to erroneous conclusions. Instead of being connective tissue, the sclerotic tissues are products resulting from the destruction of the nerve-fibres themselves. There is no connective tissue development, nor are the medullary sheaths alone affected; the axis cylinders as well are involved in the pathological process. In addition to the destruction of the nerve-fibres, there is also a regeneration of fibres, which may account for the fact that secondary degenerations in the cord are exceptional.

Popaff regards the blood-vessels as the starting point of the affection, from which the process extends concentrically outwards, embracing all the tissues surrounding them. The main changes in the vessels, consist of cellular infiltration of these walls, with consequent thickening, and at times with concentric diminution of the lumen.

The author recognizes two forms of multiple sclerosis, a subacute and a chronic form. In the former the cellular infiltration of the walls is less uniform; the mural strata of the vessels are less compact; the number of leucocytes markedly greater; the course of the pathological process is not as gradual in the chronic form; and the medullary substance and axis-cylinders are affected to a greater extent.

P. M.

The Specific Gravity of the Urine of the Insane.—After reviewing the labors of several alienists on this point and the variance in their results, Dr. Umberto Stefani, of Padova, made a careful investigation and studied for one or more months sixty cases of mental diseases with the following results: In all cases of acute insanity independent of special forms, the specific gravity ranged from 1,030 to 1,040 and sometimes higher. If the form is of short duration, the specific gravity will fall as the psychic symptoms diminish, until it reaches the normal, or even lower. When the remission of the psychic symptoms is followed by an exacerbation, the specific gravity of the urine will again increase.

If the course of the disease is long and tends to become chronic the density of the urine will ordinarily commence to diminish after a time until it reaches normal or falls below. In cases of imbecility, paranoia, senile dementia and paresis without spells of excitement, the specific gravity of the urine is not increased. But if continued frenzy and excitement develop, the specific gravity will increase to 1,030–1,040.

The writer throws out the suggestion that in the examination of the urine we have an index probably of the prognosis and course of the disease. A table of charts showing the exacerbations and remissions adds to the interest of the paper.

Rivista Sperimentale di Freniatria e di Medicina Legale, Vol. xx., Fas. i., 1894. W. C. K.

Epilepsia Tarda.—E. Mendel (*Deutsche Medicin Wochenschrift*, No. 45, November 9, 1893).

At which age may epilepsy be designated "late" or "tardy"? Delanef in his essay on the etiology of tardy epilepsy is inclined to regard thirty years as the limit beyond which epilepsy becomes "tardy." Mendel considers this limit as much too small, basing his opinion on the observation of 904 cases occurring in his own practice.

The old statistics are unreliable, as cases of symptomatic epilepsy referable to cerebral syphilis, tumors, progressive paralysis, hysteria, etc., were not sharply differentiated from those of genuine epilepsy.

The table given by Mendel is as follows:

AGE.	MALES.	FEMALES.	TOTAL.
1-5	55	57	112
6-10	90	51	141

11-15	132	74	206
16-20	92	72	164
21-25	48	37	85
26-30	34	10	44
31-35	38	17	55
36-40	28	16	44
41-45	14	6	20
46-50	11	4	15
51-55	6	2	8
56-60	6	1	7
61-65	1	2	3
Totals	555	349	904

In both sexes the frequency of the disease increases up to the age of fifteen years, the greatest number occurring between the ages of eleven and fifteen years. It will be observed that two-thirds of all the cases (623 out of 904) occur up to the age of twenty years. From the age of twenty, the frequency diminishes, to rise again between the ages of thirty-one and forty to such an extent as to justify the application to these cases of some particular appellation. Mendel, therefore, proposes to term such cases occurring after the age of forty as tardy epilepsy.

As regards the etiology of epilepsia tarda, the table shows that males are more predisposed than females. Hereditary predisposition plays a role in the causation of tardy epilepsy. In one-fourth of Mendel's cases, inheritance was clearly proven. Apart from predisposition, the direct causes of epilepsia tarda are the same as in early epilepsy. Among these are fright and trauma. Pregnancy, the puerperion and the menopause, which are regarded by some authors as causative, have not shown themselves to Mendel to exert any special influence in the production of tardy epilepsy.

The course of late epilepsy in a considerable proportion of cases is identical with that of early epilepsy. In other cases, gastric and cardiac disturbance precede for a considerable length of time the onset of the epilepsy. In general, the course is milder and less progressive, and the psychical functions appear to suffer less than in early epilepsy.

Prognosis and therapy offer no special considerations in epilepsia tarda.

P. M.

Studies on the Cortical Localization of Face Movements.—(*Le Progrès Médical*, for December 30th, 1893), contains some interesting discoveries, by Dr. E. Brissaud, in relation to cortical localization of face movements.

The case from which the study was made was a woman eighty years of age, who had been a sufferer for years from myocardiis and catarrhal emphysema. When first seen she had been carried into the hospital in an apoplectic condition. When she regained consciousness, in about an hour, it was found that there was right-sided hemiplegia and aphasia. In the course of two weeks she had recovered the power of speech. The hemiplegic symptoms began to improve, and when she left the hospital all that remained of the trouble was a slowness of locomotion. Two years subsequent to the attack she returned for treatment for cardiac insufficiency. Examination of the patient revealed right facial paralysis. Locomotion was painful and difficult. There was some muscular atrophy on the right side with hyperæsthesia. There was right ptosis with dilation of the pupil. Reaction to light and accommodation was normal in both pupils. Three months after entrance the patient died from an aggravation of the heart trouble. Shortly before death there was some return of the paralytic phenomena with transient aphasia. Autopsy revealed a cortical lesion, which the author believed was unique considering the symptoms that were exhibited during life. A soft yellowish mass was seen situated in the superior sulcus of the left insula, immediately posterior to the frontal operculum. It at first appeared to be perfectly superficial, but on microscopical examination there was found to exist on the internal border of the left peduncle a number of granular bodies. Careful examination of the brain showed no other abnormality or secondary degeneration. The conformation of the brain, however, presented several peculiarities which did not correspond to the customary type from which cortical lesions were usually mapped out. The third frontal convolution was situated markedly anterior to the inferior extremity of the fissure of Roland, and the frontal operculum, which was of unusually large size, was antero-posterior. From them arose a gyrus which anastomosed with the inferior extremity of the frontal ascending convolution. This convolution seemed to be a supplementary tract of the second

frontal. While the frontal region of the left hemisphere presented anomalies, the line of demarkation of the softening was easily made out to occupy the inferior quarter of the ascending parietal convolution. This lesion was no doubt the cause of the facial hemiplegia, but, according to the localization of leg and arm movements of other observers, there was no lesion of the brain to account for the paralysis of these members. The cortical regions mapped out as governing the leg and arm were perfectly normal. The persistence of the paralytic phenomena was kept up by the circulatory trouble, as there was found obstruction of the circulation in the region of the fissure of Sylvius. The involvement of the orbital and frontal muscles in the hemiplegia was explained by the continuity of the fibres of the projection system. The author thought, considering the very small focus of the lesion, that his study of the centre of localization of face movements in man was unique. He locates this centre definitely on the cortex of the ascending parietal operculum immediately posterior to the inferior extremity of the fissure of Roland.

B. M.

The Glycosecretory Nerves.—From the recent communication of Morat and Dufour to the *Academic des Sciences*, it would seem to be possible without either accelerating or retarding the circulation or increasing the quantity of blood flowing through the liver, to bring about the destruction of its glycogen by simply exciting the nerves of this organ. This destruction may exceed half the total amount of hepatic glycogen in a space of time not exceeding twenty minutes. There is, therefore, no doubt according to these writers that the nervous system has on the elements of the liver a direct action, independent of that which it exercises on the course of the blood by the vessels, and comparable, in fact, to that of the motor nerves on the muscles. E. P. H.

CLINICAL.

On the Peculiar Associated Movements of the Paretic Upper Eye-lid in Cases of Unilateral Congenital Ptosis, by Prof. Bernhardt (*Neurol. Centr. blatt.*, No. 9, 1894, pp. 325-537). B. narrates the case of a man, 19 years of age, with congenital ptosis on right side, whose family exhibited no neurotic history. All the movements of the eye are normal, excepting upward rotation, which is slightly less well ex-

ecuted than on the left side. Diplopia manifests itself only during strained upward vision. Right vision is somewhat weaker than the left. The ophthalmoscopic examination is negative. All other cranial nerves functionate normally.

When the patient depressed the lower jaw by opening wide the mouth, the right ptotic eye-lid rises, and remains elevated as long as the inferior maxilla is depressed. The same phenomenon occurs when the jaw is carried to the left, but the lid falls when the jaw returns to the median line.

In addition to this case, B. analyzes all of the similar cases, twenty-four in number, that have thus far been published. He arrives at the following conclusions:

1. The phenomenon of abnormal associated movements of an upper eye-lid occurs in the majority of cases in either congenital or early-acquired more or less complete paralysis of the levator palpebrae superiorum.

2. In a few cases the associated movements and levator paresis improved in the course of years.

3. On the other hand, Frankel's observation shows that in spite of late occurring paresis of the lid, its abnormal associated movements may become diminished in the course of years.

4. The associated movements are occasioned mainly by an action in the province of the trigeminus.

5. Of the muscles innervated by the trifacial, the depressors and lateral rotators of the jaw play the most important role.

6. It is almost certain that only the muscles of the corresponding side are involved.

7. In a small number of cases, the seventh is associated with the fifth nerve in the production of the movements. In these cases the phenomenon occurs on the opposite side.

8. The hypoglossus may possibly exert some influence in bringing about the associated movements.

9. As regards the pathology of the affection, B. assumes a partial congenital anomaly of the nucleus of the oculo-motorius, the neighboring trigeminus acting vicariously.

P. M.

Jacksonian Epilepsy due to Auto-intoxication of Gastric Origin.—In the *Rivista Sperimentale di Freniatria e di Medicina Legale*, Vol. xix., Fas iv., Doctor Cristiani describes a very interesting case of Jacksonian epilepsy due to gastric intoxication. The patient was

a man fifty-two years old, strong, healthy, with good family history, no history of vices or excesses, no disturbances of any of the sensory organs, no artero-sclerosis, no malformation of head or scar on scalp; urine, normal in quantity and quality. For some years he has suffered from stomach and intestinal disorders, such as loss of appetite, nausea, ructus, pyrosis, tongue coated, mouth dry and bitter, bowels constipated. Occasionally besides these symptoms he would notice paraesthesia of the limbs, flushings, then coldness of the extremities, and such mental symptoms as depression, melancholia, hypochondriasis, irritability, cephalalgia, vertigo, etc.

On the morning of September 8, 1892, he had the first attack. The aura was distinctly felt, consisting in a feeling of heat in the head, anxiety and precordial oppressions. He then felt creeping sensations in the arm and leg of the right side, followed by clonic spasms first of the right arm, then of the right leg, and at the acme of the attack the right side of the face would become involved. The paroxysms would last from five minutes to fifteen minutes, with no loss of consciousness, would not fall to the ground, but in a vacillating manner stagger to the right. On the first day he had three attacks, then about one attack every other day for two weeks. The pupils were dilated, patellar reflex exaggerated on the right side, and urine contained an excess of urea and phosphates. The treatment directed to the gastric catarrh had the effect of controlling the attacks and in over a year they have not reappeared. W. C. K.

Reflex Spasms.—The *Medicinisch-chirurgische Rundschau*, for January, 1894, contains the report of Gallerani and Pacinotti's case of reflex spasm of the tongue, lips and throat due to an old wound of the occipitalis nerve of the left side. There were intermittent contractions of the muscles of the neck on the left side, with occasional difficulty in masticating and swallowing. On examination of the patient's head an old cicatrix was found situated between the occipital protuberance and the cervical prominence. At the extremity of the cicatrix was a small tumor about the size of a millet seed. Pressure in this situation caused great pain. At first the symptoms were thought to be due to bulbar paralysis, but further examination excluded this diagnosis. It was supposed that through the anastomoses between the nerves of the occipital region and those of the cervical plexus with those of the hypoglossal, the reflex spasms of the labio-

glosso-pharyngeal regions were produced. Excision of the scar resulted in a complete disappearance of the spasmodic symptoms and of the pain. B. M.

A Case of Chronic Arsenicism.—At a recent meeting of the Medical Society of the Hospitals, Mathiew presented a patient aged fifty years, affected with neurasthenic depression, who for twenty years had been taking arseniate of sodium in large doses to clear his voice and give him strength. He had been in the habit of using a solution of arseniate of soda one to 500, of which he prepared a pint at a time. This quantity would last him a month, and the daily doses would amount to three to four centigrammes, or rather more than half a grain.

In 1883, in the course of a voyage to Algiers, this patient increased his doses, and was taken with the accidents of acute arsenical poisoning, characterized especially by phenomena of intense gastro-enteritis with profuse diarrhoea. His diarrhoea lasted from three to four months; it was at this period that a cutaneous pigmentation appeared, which has been constantly growing worse.

The skin of this patient presents at this date a bronzed, tawny or slate colored pigmentation, the color varying in places. On this pigmented base are mapped out little lenticular spots which are rather more clear than the surrounding integument, and are scattered without order over the surface of the skin. The face completely escapes the pigmentary staining. On the palmar surface of the hands, there exists a marked degree of hyperkeratosis. On the feet, this hyperkeratosis is much less pronounced. The nails of the toes and fingers are unequal, irregular, deformed, and grooved. Lastly, the muscular masses of the legs are atrophied.

With respect to motility, there was formerly almost complete paralysis of the inferior limbs. At the present time, we notice only a certain degree of uncertainty in walking when the patient keeps his eyes shut, but the pupils react well to the light. With respect to sensibility, there exists only a little hyperæsthesia over the sole of the right foot. There is no contraction of the visual field, or difficulty of micturition.

These phenomena may be explained on the theory of the existence of a peripheral neuritis. It is interesting to note in this connection that this patient had never used alcohol to excess, and the arsenical dosing to which he was so long addicted must be regarded as the princi-

pal, if not the only factor, in this chronic poisoning.
E. P. H.

Intracranial Complications of Otitis Media Purulenta.—Dr. J. G. Risler, of Stockholm, has made a study of this subject. The important symptoms are: headache, which may be diffuse, localized, continuous, or intermittent, often with the character of a neuralgia, with a feeling of weight and disagreeableness. As a rule, no connection between the headache and the localization of the affected focus can be demonstrated. Vertigo is often present, likewise vomiting. Changes in the optic disc and retina may also be observed. It may vary between a venous hyperemia and a distinct choked disc; fever, with disturbance of the general health. The strength and nutrition decrease out of all proportion to the disturbance of sleep and nutrition. A sort of atony seems to prevail through the patient's functions. Slow and sluggish cerebration, the answers to questions are given properly, but they require a longer time than normal. Sensitiveness to percussion around the ear is the least reliable sign of all; neuralgia of the trigeminus. The most important symptom is that the pus forces a way out of the cranial cavity from a purulent pachymeningitis. For example, in one case the auditory canal was found filled with pus a few minutes after careful cleansing. In other cases the pus broke its way through the side walls of the skull with œdema or an abscess in the vicinity of the ear. If in a case of otitis media, high fever, headache of great intensity, great severe vomiting and delirium suddenly appear which rapidly pass over into coma, and it is highly probable that the inflammation has extended to the encephalic membranes. Rigors and irregular fever with great variations of fever denote sinus thrombosis. Later signs of metastatic abscesses appear in various organs. A continuous and dry cough is characteristic of the lungs being attacked. In some cases where the thrombosis extends down into the internal and common jugular vein, the vein filled with thrombic masses may be palpated; in others, there is sensitiveness to pressure in retromaxillary fossa and the inner border of the sternocleidomastoid muscle, œdema of the soft parts of the neck, and distension of the external jugular. In some there is hoarseness and dysphagia. A benign thrombus filling the transverse sinus, as a rule, cannot be diagnosticated. If it extend through the vena emissaria santorini and its

anastomoses, it forms induration in the connective tissue of the back of the neck resembling a phlegmasia alba dolens. Thrombosis of the longitudinal sinus produces symptoms resembling those of meningitis; delirium passing into stupor, hemispasm followed by paresis, epileptiform attacks, etc. Thrombosis of the petrous extending to the cavernous sinus and the veins of the fundus of the orbit produce: disturbances of the senses, exophthalmos, venous hyperemia and œdema of the eyelid and the neighboring portions of the face. The stages of cerebral abscess are two: the latent with disturbances of mind, headache, vomiting, vertigo, which may persist for a longer or shorter time, but with characteristic free intervals, and the second stage, the manifest period, the transition occurring from a blow, a fall or an exacerbation of the ear disease. The pulse is reduced in frequency, to forty or under, a progressive hemiplegia of the side opposite to the affected ear sets in with disturbances of speech. A reliable diagnostic symptom of cerebellar abscess is not known. It is a great rarity in children. In obscure cases of cerebral disease, trial trepanation is not only permissible but indicated.—*Hygiea*; Nos. 5 and 6, 1893. F. H. P.

PSYCHOLOGICAL.

Criminal Anthropology.—(*Edinburgh Med. Jour.*, February, 1894). Sir Frederic Bateman, M.D., LL.D., F.R.C.P., endeavors to show upon what a slender basis of facts this new science exists. He says that to say the least, if not true, it is a very dangerous doctrine; and, as society is at present constituted, it cannot afford to have a class of criminal automata, and to have every rascal pleading guilty grey matter in extenuation of some crime. He considers the subject especially important at the present time, when attention is so widely directed to the mysterious connection between matter and mind. Unhappily, instead of solving the question, he believes the study of criminal anthropology tends to shroud it as a still deeper mystery and shows that the *vis viva animi* justifies the eloquent language of a recent writer when he says, "Mind is, indeed, an enigma, the solution of which is apparently beyond the reach of this very mind—itself the problem, the demonstrator, the demonstration, and the demonstrand." A. F.

On the Nature of Dreams.—Samuel Wilks, M.D.,

LL.D., F.R.S. (*The Medical Magazine*, February, 1894). There are learned men, who, while not admitting that they regard dreaming as a mystery, still imply that the brain has some remarkable powers during sleep, denied it in the waking state. Organs are constantly varying in their degree of activity and this depends upon the amount of circulating blood ; thus when the brain is full of blood it is active, and when anæmic, it is in a state of repose. It is now generally admitted that during sleep thought may continue, or, as it is styled, unconscious cerebration. Reliable persons maintain that where some difficult questions have been on the mind before going to sleep, they have found these questions solved in the morning, which proves that although consciousness is suspended the brain remains at work.

With regard to dreaming, the accepted theory is that the brain or mind is at work as in the waking state, but that being cut off from all the usual surroundings and consciousness being absent, it is unable to correct itself or its impressions and so wanders on in an endless maze. This may be better understood by remembering what we do, when in doubt as to the character of our thoughts. We are, for example, sitting over the fire and darkness begins to surround us, lost in contemplation we fall into a reverie and are altogether in a state of abstraction. We start up, ascertain where we are, discard the mental vision and are ourselves again. In sleep we cannot do this and the vision becomes a reality, which, when we awake to consciousness, we call a dream. Whatever the dreamer sees or hears in his dream is of his own creation originating in himself, and when he argues a question with another person, he is dictating the speeches of both. If it be true that the dreamer did all the things which he relates, then there would be something of a supernatural kind taking place during sleep. The only possible solution of his difficulty lies in the denial of the dreamer's assertion that certain events did happen during his dream. If we dream we are flying through the air, we fully admit our dream was a nonsensical one. In other instances the illusions may not appear to be so grossly impossible, yet probably they have been fabricated in the same manner. A dream cannot be anything more than a picture formed in the mind during sleep and the solution of it is the interpretation. This explains why in an exceedingly short space of time, one may have what appears a long dream. We conjure up a picture

made up of parts, it may be rapidly formed, but the description of it takes time. If we introduce into it the figure of a German professor, he speaks his own language perfectly, although the dreamer when awake is unable to speak a word of German. In the case of a man who has a dream made up of consecutive parts, terminating appropriately with the sound of church bells, where during the progress of his dream a bell has actually been ringing in the sleeper's room, which eventually wakes him, does it not appear highly probable that this very sound originated the whole chimera? The dreamer merely forms a mental picture and the *description* of it he calls his dream.

A. F.

THERAPEUTICAL.

The Effects of Hyoscine Hydrobromate.—

Gordon Sharp, M. B., Edin. (*The Practitioner*, Jan., '94). Although hyoscine is an isomer of atropine and hyoscyamine, it is believed to differ widely from them in its physiological effects, and many cases have been reported of its beneficial action as a motor calmative, cerebral sedative and hypnotic in delirium. The clinical effects of the drug, however, in my hands, resembled in every way those of atropine, and differed from those recorded in many published accounts.

CASE I.—A man with delirium tremens was given $\frac{1}{4}$ gr. He did not sleep any during the night, and the next morning the same dose was repeated. Half an hour after the injection the pupils were widely dilated. The respirations went up 40. It is generally stated that hyoscine does not affect the respiratory centre as atropine does. The throat appeared to be dry. He became partially comatose, but no sleep was obtained. He was unable to speak, and could only make a gurgling noise. He was also unable to swallow fluid, evidently owing to partial paralysis of the muscles of deglutition.

CASE II.—A man with delirium tremens was given $\frac{1}{16}$ gr. hyoscine. In fifteen minutes the pupils dilated. The pulse rose 130 and the respirations to 48. The speech became an incoherent mumbling. The throat was evidently dry and he could not swallow even half a teaspoonful of fluid. Later, uræmic-like seizures followed by fatal coma, developed. Death appeared to be hastened by the great stimulation of the circulation and of the respiratory centre.

CASE III.—A woman of 45, for intense headache and

sleeplessness was given an injection of $\frac{1}{4}$ gr. No sleep was obtained. The throat was dry. She had severe jerkings of the limbs, and became alarmingly delirious. From these cases, hyoscine evidently differs little in its action from atropine, and until more is known of its chemistry, pharmacology and clinical effects, it can hardly be recommended as a safe hypnotic. A. F.

Chloralose.—F. Gordon Morrill, M. D. (*Boston Med. and Surg. Journal*, Nov. 16, '93). Properly used in cases *uncomplicated by hysteria or alcoholism* it has justified the claims of its discoverers: that it is safe, produces no "habit," does not require a progressive increase of dose, is reliable and produces refreshing sleep attended by no disagreeable after effects. In simple insomnia it acts "like a charm," and is more reliable than chloralamid. In the case of an old man with organic heart trouble, whose nights were rendered wretched by dyspnœa, palpitation and fear of sudden death, a fairly large dose gave complete relief for six weeks. In an elderly lady, with whom other hypnotics had failed, and who had formed the habit of obtaining sleep by taking a glass of whiskey at bedtime, chloralose gave refreshing nights. It was here necessary to abandon the whiskey and pass several sleepless nights before taking the remedy, as alcohol is distinctly unfavorable to the action of chloralose. A young married woman, whose inability to sleep was due to anxiety, took six grains of chloralose, and after a good night's sleep suffered from marked inco-ordination for an hour after rising. The same occurred after a repetition of the dose, and the medicine was discontinued. A distinctly hysterical attack following a day or two later furnished an explanation of these symptoms. It is best administered in a cachet containing three grains an hour before sleeping-time and repeated when the time is up if no effects are obtained. In case insufficient sleep follows the first dose it is repeated when the patient awakes. As a rule, this dose will secure five to nine hours sleep in any case which cannot be classed among the exceptions, which resist the action of this drug. A. F.

Piperazine as a Uric Acid Solvent.—Confirmatory evidence of the utility of piperazine as a solvent for uric acid in the body, has recently been afforded by the experiments of Dr. Rosenthal on animals (*Medicin. Post.*). These experiments consisted in producing deposits of uric acid in the heart, pericardium in the bladder

and kidneys, and then administering piperazine in doses of 0.75 gm. by the mouth or subcutaneously. After a period varying from two to seven days, the animals were killed, and in all of those which had been treated with the remedy, a complete disappearance of the uratic deposits was observed. On the other hand, the control animals which had been treated with borax, phosphate of sodium, and lithia exhibited considerable collections of uric acid in the different organs. On the ground of these experiments, Rosenthal regards Piperazine as the most reliable solvent for uric acid. Albuminuria was never observed. Dr. Blanc (*Americ. Jour. of the Med. Sciences*, April, 1894) also states "that theoretically the use of piperazine is very encouraging. As an alkaloid of the pyridine group, it is not poisonous nor irritant. The combination of urate of soda and this drug is nearly nine times more soluble than the urate of lithia. Vogt has found that under fifteen-grain daily doses the amount of urates is decreased, while that of urea increases. This goes to show that not only does this drug dissolve urates, but it is an oxidizing agent and modifies tissue change. On the other hand, the nitrogen which is eliminated is not increased, which shows that there is no increase of waste, nor supplementary decomposition of albuminoids. Piperazine has been strongly recommended for gout, in that it relieves the pain, frees the engorged joints, and expels renal calculi. Patients who have suffered from nephritic colic, some days after the drug experience a recrudescence of the pain, which is followed by the expulsion of a large calculus, which has apparently been diminished in size by the action of the drug. In this respect it appears to act with less danger than do the alkalies, and more rapidly than the flushing out of the kidneys with mineral waters." Piperazine-Bayer is a chemically pure preparation, and is furnished in half-ounce and ounce vials and also in tubes of ten tablets, each tablet containing sixteen grains, which is an average daily dose.

Critical Review of the Treatment of Chorea.—

By Dujardin-Beaumetz (*Bulletin Général de Thérapeutique*, March 15, 1894).

Before entering upon the treatment of chorea, the disease is to be carefully studied with reference to its origin, stage of development and its form. As regards ætiology, rheumatism and hysteria play the most important roles; frequently they unite in the causation of

the affection. It is to be borne in mind that chorea is a cyclical affection, having a period of ascension, a stationary period, and a period of decline. Discriminations between the paralytic and the active forms are also to be made.

The salicylate of soda, which may be regarded as a specific in acute articular rheumatism, is valueless in rheumatism of the cord and its membranes, producing chorea. Antipyrin, in cases that are mild or of medium severity is more efficacious, and is to be given in daily quantities of four grammes. In grave cases, antipyrin is found wanting; powerful hypnotics are indicated to prolong sleep and to prevent the patient from giving himself up to the disordered movements. In these cases, chloral from 3 to 5 grammes in twenty-four hours is called for. In the milder cases, exalgine 0.1 grammes from four to seven times daily has also been of use.

In addition to internal treatment, external medication is to be employed. Hydrotherapy is especially applicable to hysterical chorea. It is contraindicated in rheumatic chorea with endocarditis.

Massage and gymnastics are beneficial in the paralytic forms, and during the period of decline.

In hysterical chorea, bromide of potassium and hydrotherapy are the indications. Of the bromide, from 2 to 4 grammes are given daily.

Arsenic plays an inferior part in the treatment of chorea. The author employs it for its tonic effect, and to counteract the bromide acne. The general depression produced by the prolonged treatment with the bromides, may be counter-balanced by the cold douche along the spine. The ether spray has been employed as a succedaneum for the douche. In very severe cases, the cold pack followed by a warm blanket may be resorted to.

In the paralytic form the bromides are not to be used. The wet pack appears to be the best remedy. P. M.

Somatose, the New Restorative.—Attention has recently been directed in medical and pharmaceutical journals to somatose, a new reconstructive agent, and, according to the reports which have appeared, this preparation is especially suitable for weakly children and persons of reduced nutrition.

Somatose is an odorless powder, prepared from meat and readily soluble in water. The solution has a slight, not disagreeable taste, which is best covered by addition

of milk or cocoa. Somatose contains the albuminous principles of meat in a soluble form, as well as its nutritive salts, but is almost completely free from peptone. Its preparation is based upon the following considerations.

The investigations of the last few years have shown that peptone, which is present in all meat-preparations, beef-extracts and peptonoids, possess but slight nutritive value, and therefore is able to accomplish but little in cases where it is desired to raise the condition of nutrition of the patient and produce a gain in flesh. Another disadvantage of preparations with a high percentage of peptone is, that in the course of time, they disturb the taste and even excite repugnance, that they irritate the intestinal tract, and that diarrhoea not infrequently ensues after their use. The meat-preparations and peptonoids in the market, consist chiefly of peptones, and contain but a slight amount of other albuminous substances, and this explains why meat-extracts and the solutions prepared from them are valueless for the purpose of nutrition, as has been generally stated by authorities. The latter are the substances which alone possess nutritive value, and should be preserved as completely as possible in meat-extracts, instead of being eliminated from them, as is done in Liebig's extract of beef. These readily soluble proteids, the albumoses, have the advantage of being tasteless, and when introduced into the system are rapidly absorbed and taken up in the fluids of the body, while by reason of their ready absorption, they at once contribute to nutrition.

These facts have long been known, but the attempts to separate the albumoses from the peptones, which are formed in the process of manufacturing albuminous products, were always unsuccessful, so that hitherto, a preparation consisting exclusively of albumoses could not be obtained in the market. It is but recently that the Farbenfabriken vorm. Friedr. Bayer & Co., of Elberfeld, have succeeded in preparing the albumoses in a pure state from meat; and they have, therefore, created a product, which in this particular, is unexcelled, and possesses the highest nutritive value of all the meat preparations in the market, whether meat-extracts or peptonoids. This product has the additional advantage of being soluble in all ordinary fluids, so that it can be administered in milk, cocoa, gruel, bouillon, etc., and as it is practically tasteless, without the patient's knowledge.

Society Reports.

AMERICAN NEUROLOGICAL ASSOCIATION.

*Twentieth Annual Meeting held at the Cosmos Club,
Washington, D. C., on May 30 and 31, June 1, 1894.*

President, B. SACHS, M.D., New York.

Secretary and Treasurer, G. M. HAMMOND, M.D., New
York.

Dr. SAMUEL AYRES presented

A CASE OF MYXŒDEMA TREATED BY SHEEP'S THYREOID (See page 481.)

DISCUSSION.

Dr. M. A. STARR, of New York City, presented photographs of patients having myxœdema; in three, improvement was seen. There were some practical points, he said, about using the thyreoid extract. Parke, Davis & Co.'s extract was good, but it produced gastric disturbance. He had also used fresh preparations made for him by his assistant, but he now used exclusively the cheapest preparation, which was Burroughs, and Wellcome's tabloid, imported by Fraser, and by Fairchild Brothers and Foster from England. It was put up in a very neat form, and was odorless and tasteless. It cost only one cent per tablet. Each thyreoid tablet contained five grains of thyreoid extract, and after a patient was practically cured, one tablet per day was all that was required. He had seen in two of these patients melancholia with suicidal intent. Each of them had had hallucinations and dementia.

In regard to the treatment of allied diseases by thyreoid extract, the speaker said he had tried it in paralysis agitans without benefit. He had seen marked improvement follow its use in neuroses of the menopause—*i. e.*,

flushes, headaches and blotches. He had also used it in acromegaly. In two of these cases the patients had been made more comfortable and the symptoms were more thoroughly relieved than by any other that had been tried. He had tried it in epilepsy, progressive muscular atrophy, and chorea without effect.

Dr. GEORGE W. JACOBY, of New York City, presented photographs of a case of myxœdema now under treatment with thyroid extract. He thought that we could not see too many of these cases, as the diagnosis was not always as simple as has been assumed. So this case had been seen by a number of observers without a correct diagnosis being made; these photographs were taken from a fourteen-year-old girl, who in addition to the physical and psychical myxœdematous symptoms presented a quasi dystrophic condition of the lower extremities. Such association of myxœdema with primary muscular dystrophy has been noted in a few cases and for this reason the speaker thought it possible that thyroid extract might be of service in uncomplicated dystrophic disorders.

Dr. E. D. FISHER, of New York City, said he thought the administration of thyroid extract should be confined to cases of myxœdema, or to thyroid affections. Trying it on other diseases was simply experimenting without reason therefor. He was decidedly opposed to even suggesting its use in mental diseases without symptoms of myxœdema.

The PRESIDENT dissented from this view, namely, that thyroid extract should administered only in myxœdema, and said he thought it was proper to employ the thyroid extract empirically, as we were not yet thoroughly familiar with the function of the gland.

Dr. F. X. DERCUM, in answer to a query by the President, stated that he had successfully treated one case of myxœdema by the administration of the thyroid gland. The mental symptoms in this case had, however, not entirely disappeared.

Dr. E. D. FISHER said that one would suppose from the cases reported that the results of this treatment were absolute cures; but such was not the case, as he had found that the mental functions remained more or less impaired. There was more marked improvement in the physical condition. The use of thyroid extract in appropriate cases had proved of the greatest benefit, but he deprecated its employment when specific indications did

not call for it, as it tended to lower its position as a therapeutic agent.

Dr. LANDON CARTER GRAY, of New York City, said that the effect of these extracts were transitory, and that some of the cases of myxoedema had already relapsed. This treatment would probably share the fate of treatment with other extracts. He had used brain and spinal cord extracts and with marvellous results. In one case of syphilis of the spinal cord with symptoms of pseudo-ataxia and subacute mania, the patient made a fair recovery under the use of mercury and iodide of potassium. After the subsidence of the subacute mania, he had great tremor of the hands, etc., and slowly passed into a condition of dementia, so that he did not recognize anyone. Thinking the case was then a favorable one for the trial of the brain extract, this treatment was instituted and with incredible results. In the course of three weeks he was as well as he had been six months before, and his attendant thought he would recover; but the day the speaker came to see him, he had a fit and died. There was a syphiloma in the brain, and marked evidences of intracranial syphilis, membranes, parenchyma, and arteries being implicated.

In another case, one of syphilitic paraplegia, one of complete absence of sensation and motion in the lower limbs, mercury and iodide of potassium were used, but he had more regard for himself, and took twelve hundred and fifty grains of the iodide of potassium for ten days. The only complaint was that he slept seventeen hours out of the twenty-four. The dose was then reduced to six hundred grains, which he took well. With all this medication there had been no improvement for about eight months, so he was put on the spinal cord extract, and at the end of six weeks he was able to move his legs.

Dr. LEONARD WEBER, of New York City, asserted that there was not a single case of absolute cure on record. In one case which had come under his observation, the result had been exceedingly good. Relapse was apt to recur unless the remedy was continued. Greater and more permanent relief, he thought, could be obtained by surgical means.

Dr. G. L. WALTON, of Boston, mentioned a case which improved so rapidly under five grains once a day that in one week she was hardly recognizable, on account of the change in expression.

Dr. J. ARTHUR BOOTH read a paper on

A REVIEW OF THE THYROID THEORY IN GRAVES' DISEASE.—REPORT OF TWO CASES TREATED BY THYREOIDECTOMY.(See page 486)

DISCUSSION.

Dr. J. J. PUTNAM, of Boston, expressed his interest in the reader's paper and cases, and said that though his own experience had not been very favorable to the operation, yet the published reports and those given by Dr. Booth, indicated that it was often of great value. He thought the dangers of the first few days after operation had not been made enough of.

Sometimes everything goes well, but great prostration and sudden death is occasionally seen. One of his two patients had died; and the other was for some days at the point of death, with complete collapse and pulse of 200.

A third patient, operated on some years ago by a Swedish surgeon, had recently consulted him for a relapse of symptoms with return of the goitre, and she also reported that during the first few days after operation she had been very ill.

Dr. Putnam doubted the tenability of the "thyreoidal theory" of Graves' disease. He called attention to the case recently reported by Richard Owen, where a man with typical Graves' disease had been given, from misunderstanding, a quarter of a pound of sheep's thyroid, instead of a quarter of a gland; yet the disease was not markedly accentuated. He himself was treating a severe case of Graves' disease with thyroids, and the patient, though she has grown very thin, has been in some respects better during part of the time at least.

Dr. J. MADISON TAYLOR, of Philadelphia, remarked that it was of value to record briefly an experience in the use of thyroid extract. He had used it very faithfully in certain cases of exophthalmic goitre long under his observation, and had not found it of definite value over and above other simpler measures, and in meeting obvious indications. In that connection, he related the case of a child of two years, described most carefully by a student at the Polyclinic, in whom undoubtedly true exophthalmic goitre was present. This he will report in full later.

Dr. W. J. MORTON, of New York City, recalled four recent cases which had been absolutely cured by the use of electricity for a period of from two to three months. He preferred this method of treatment.

Dr. F. X. DERCUM said that it was very difficult to understand, or to formulate a theory to explain the favorable results after operation. It was difficult to reconcile the results with the cases of Graves' disease every now and then met with, in which the thyroid gland is already excessively atrophied instead of being enlarged.

Dr. WILLIAM A. HAMMOND, of Washington, D. C., asked if Dr. Morton had used any other remedy in conjunction with the electricity. He had seen satisfactory results from using electricity together with digitalis and hyoscyamin, and diminishing the amount of fluid ingested to as little as a quarter of a pint a day.

Dr. MORTON replied that he had used electricity only.

The PRESIDENT thought many cases were curable. He instanced the case of a young woman who had developed the disease after a sudden fright. A prolonged period of rest in bed was prescribed for her. She subsequently married, gave birth to a child, and completely recovered from her symptoms of Graves' disease.

Dr. J. A. BOOTH said that the alleged danger of the operation was not borne out by statistics. None of the recorded cases show any excessive hæmorrhage to have occurred from cutting through the gland itself. In his case, the patient did well. Galvanism had been used faithfully for seven months and without result.

EXPERIMENTAL INVESTIGATION ON THE PHYSICAL AND CHEMICAL ACTION OF THE GALVANIC CURRENT ON THE LIVING ORGANISM.

By Dr. G. W. JACOBY and Dr. F. SCHWYZER, of New York.

ABSTRACT.

A critical analysis of the facts thus far gained through the study of the action of the galvanic current upon the living organism, shows not only that many problems still

await solution, but that from a practical point of view nothing has been learned which would in any way explain the therapeutic successes so generally attributed to the use of galvanism. The direction in which investigations have thus far been conducted is an erroneous one, and the manner of carrying them out, faulty; no successful issue will be reached until the purpose of our experiments be directed to discover the changes which are produced by the action of electricity in the living cell. What changes the galvanic current may produce in the single cells of the body, may be discovered by directing our attention to the physical state of these cells and to their chemical constitution after they have been subjected to the influence of the current. The study of the phenomenon of electrotropismus should also cast some light upon the subject.

The present investigations were devoted solely to a study of these chemical and physical effects. Investigations as to the influence which the galvanic current may exert in producing nuclear changes have as yet to a great extent remained fruitless; so also the microscopical specimens of muscles obtained from living frogs through which a strong current had previously been passed, have revealed very little. The blood itself, having been prepared according to Ehrlich's well known methods, however, showed distinct deviations from the normal; the specimens from the positive leg were made up of red corpuscles remarkably increased in size, but of unchanged contours, while the red corpuscles in the specimens from the negative leg, were decreased in size, and their contours were indistinct and dentated. In man, precisely similar results were attained, and were, if anything, more pronounced than in the frog. These changes may be explained to a certain extent by the laws of cataphoresis, the variations from Porret's phenomenon probably being due to the differences in the osmotic condition of the parts through which the current flows. The experiments which were made with a view of determining any electrolytic action of the current upon the interior of the body, were of a much more complicated nature, and only after many ill successes were positive results obtained. These results were finally brought about in the following manner, rabbits and guinea pigs being used. Two robust animals, narcotized, were placed back to back, a portion of skin over the spine of each animal having been previously removed; thus electrically speaking, one

animal possessing two distinct circulatory systems, was obtained. The electrodes were then placed upon the thorax of each animal and a current of fifty m. a. passed for about fifteen minutes. Hereupon the thorax of each animal was opened as quickly as possible, the apex of the heart cut off and thus nearly the entire amount of blood which flowed from each circulatory system was obtained. This blood was examined by a modification of Krauss' method, which the authors were obliged to make use of, and which they highly recommend. As a result of many such experiments it was found that the blood taken from the animal subjected to the influence of the negative pole contained 0.36% Na OH, while the blood from the positive animal contained over 20% less than this amount.

From their experiments the authors conclude that inasmuch as the red blood corpuscles are influenced by the cataphoric action of the galvanic current, there is no reason why the same should not take place in the leucocytes and other plasma cells which are rich in fluid, as for instance, the smooth and striated muscular fibres. Whether and to what extent the physiology of the cell is altered by these cataphoric changes, cannot as yet be determined.

On the other hand, to the changes produced in the alkalinity of the tissues they attach very great importance, and drawing deductions from another series of experiments upon *Spermatozoa*, they believe that while the tissues in a condition of rest possess a medium degree of alkalinity, a slight increase of this in the neighborhood of the cathode will produce a very marked functional activity, while on account of the decreased alkalinity, we will have reduced functional activity in the neighborhood of the anode. To what extent the circulation is able to equalize these disordered conditions of alkalinity, and whether any therapeutic deductions are permissible from these experiments, are questions which the authors as yet prefer to leave unanswered.

DISCUSSION.

Dr. W. J. MORTON, of New York City, said that the results attributed to the cataphoric effect seemed to be subversive of what had been usually taught, for it had thus far been accepted that the tissue at the negative pole had its fluidity increased, while the tissue of the positive

pole was decreased. As to the action of the galvanic current in producing acidity of tissue at the positive pole region, and alkalinity at the negative pole, he welcomed the experimental evidence furnished by Dr. Jacoby. It was certainly true that this effect entered widely into the intra-polar region, and thus influenced the irritability of tissue, as in anelectrotonus and katelectrotonus.

This physical explanation of physiological states had first been made by von Humbolt, who attributed the increased response to the excitation of the negative pole to the increased alkalinity produced in an already alkaline tissue by that pole, and the decreased response to the positive pole to the fact that that pole produced an acid reaction. The speaker would go further than this, and had already suggested as an explanation of the increased response to the positive pole in the reaction of the degeneration of Erb, that the muscle degenerating had an acid reaction and, therefore, responded most vigorously to the acid, viz, the positive pole. As to alkalizing the blood electrically, we might, perhaps, do this better by alkalies administered by the mouth, but we could not by drugs do what Dr. Jacoby had done and render a tissue less alkaline or more acid. Therefore, the local action of electricity in this respect could not be otherwise affected.

Dr. JACOBV said he wished the Society to look upon this as a preliminary communication, for other experiments were in progress which would certainly be productive of positive results.

Analgesia of the Ulnares as a Symptom of Tabes, by E. Biernacki (*Neurol. Cent. blatt.*, No. 7, 1894, pp. 242-246).

B. has discovered that analgesia of the ulnares occurs frequently in tabes dorsalis, having observed it in fourteen out of 20 typical cases. In the fifteenth case, only the left ulnaris was analgesic, whilst the right showed normal sensibility. In the remaining cases, the analgesia was not absolute, the patients experiencing pain on a repeated pressure.

P. M.

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SEPTEMBER 1894.

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THE
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Original Articles.

A STUDY OF THE TEMPERATURE SENSE.¹

BY W. H. RILEY, B.S., M.D.

Physician to the Department of Nervous and Mental Diseases in the Battle Creek Sanitarium, Battle Creek, Mich.

THE purpose of this study of the temperature sense has been :

1. To determine the relative sensibility of the skin to heat and cold in the different parts of the body.
2. To determine the lowest temperature that will give a sensation of heat, and the highest temperature that will give a sensation of cold when applied to the surface of the body.
3. To determine the temperature which gives pain with heat or with cold, when applied to the different parts of the body.
4. To determine the relation, if any, between the number of the "hot spots" and the sensitiveness to heat in the different parts of the body, and between the number of "cold spots" and the sensitiveness to cold in the different parts of the body.
5. To determine the modifying influence of heat and cold on the temperature sense.
6. To determine the "reaction time" to heat and cold in the different parts of the body.

¹ Read by title at the Meeting of American Neurological Association, Washington, D. C., May 30, 1894.

The subjects used in the experimentations were thirty healthy young men between the ages of twenty and thirty-five years. The temperature of the room in which the experiments were conducted was kept at 80° F., and all conditions of the body were kept as nearly as possible the same in all the cases.

The surface temperature of the different parts of the body, especially the temperature of the feet and hands, is an element of importance which needs to be kept in mind in determining the sensation produced by the application of any temperature to the surface of the body.

The tests made in this series of experiments numbered over five thousand. In each case each lateral half of the body was divided into fifteen different areas, as follows :

1. Feet ; 2. Inside of leg ; 3. Outside of leg ; 4. Inside of thigh ; 5. Outside of thigh ; 6. Abdomen ; 7. Chest ; 8. Front part of neck ; 9. Face ; 10. Upper arm ; 11. Fore-arm ; 12. Hands ; 13. Back part of neck ; 14. Dorsal spine ; 15. Lower spine and sacral region.

These parts are numbered as above in Figs. 1 and 2, which see on next page.

To determine the relative sensibility of these different areas of the body to heat and to cold, the tests were made in the thirty different subjects by the use of test-tubes containing water at 0°C., 5°C., 10°C., 15°C., 20 C., 25°C., etc., up to 70°C. The sensation produced in the different areas of the body was noted in each case, with the different temperatures, and comparisons were made.

Of the thirty subjects tested it was found that a few were very much more sensitive to heat and cold than the majority, while a few others were much less sensitive to heat and cold than the majority. Besides this, there were slight variations in the different cases. One fact, however, showed itself very prominently : Each of the fifteen different areas of the body tested occupied a certain position of its own in the scale of sensibility to heat and to cold. The parts that were most sensitive to heat

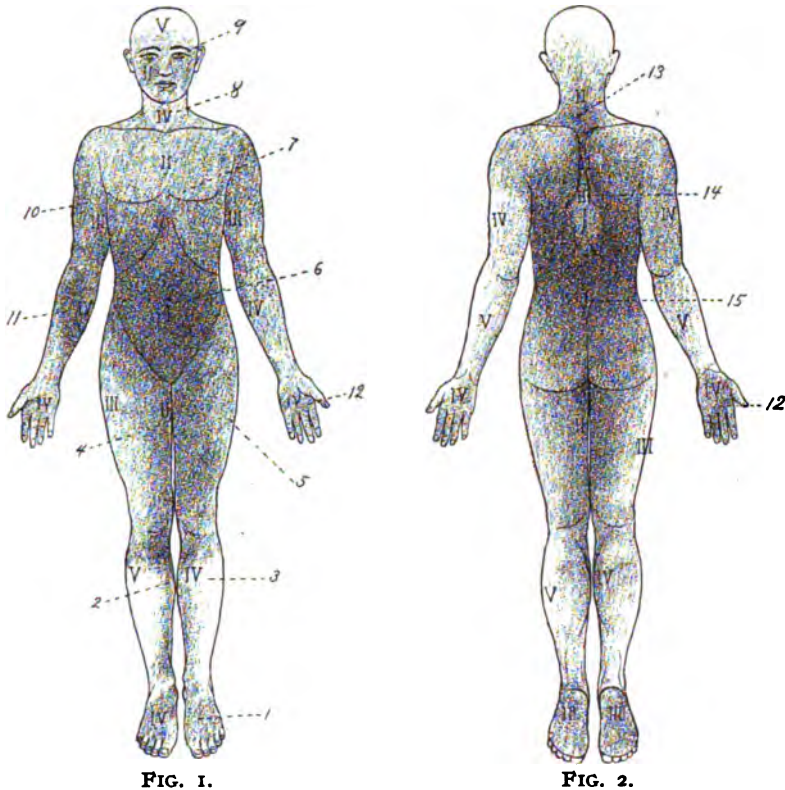


FIG. 1.

FIG. 2.

Figs. 1 and 2 illustrate the relative sensibility of the skin to heat and cold, the deeper shading representing the most sensitive parts to both heat and cold, and the lighter shading the less sensitive parts to heat and cold.

The Roman numerals also represent the relative sensibility of the different parts. The lower numerals are placed on the most sensitive parts and the higher on the less sensitive parts.

The Arabic numerals refer to different divisions of the surface of the body.

were likewise most sensitive to cold. The parts of the body, given in the order of their sensibility, are as follows :

I. Abdomen, sacral and lumbar regions of the spine, with the intervening space on each side of the body.

II. Inside of thigh, chest, cervical spine, and upper dorsal spine.

III. Inside of arm, outside of thigh, lower dorsal spine, and the soles of the feet.

IV. Front of neck, inside of forearm, palm of hand, inside of leg, and top of foot.

V. Outside of forearm, outside of leg, and forehead.

The soles of the feet are more sensitive than the palms of the hands. The palm of the hand and the back of the hand are about equally sensitive.

Figs. 1 and 2, on page 551, illustrate the degree of sensibility of the skin to heat and to cold, the deeper shading indicating the most sensitive parts, and the lighter shading, the less sensitive parts to heat and to cold. The Roman numerals on the charts indicate the relative sensibility of the different parts of the body. The lower numerals are placed over the most sensitive parts, and the higher over the less sensitive parts. Those parts having the same numerals have the same, or very nearly the same, sensibility to heat and to cold.

To determine the lowest and highest temperatures which give rise to a sensation of heat or of cold, when applied to the skin, in each of the different parts of the body, ten subjects were tested in the different areas of the body shown in Figs. 1 and 2. The tests were made with test-tubes containing water at varying temperatures between 33°C. and 41°C. In the majority of the cases, in nearly all of the fifteen different parts of the body tested a temperature of 33°C. gave a sensation of cold, and a temperature of 41°C. gave a sensation of heat. Temperatures between 33° and 41° gave different results in different cases, and in different parts of the surface of the body in the same case. A detailed report of the different results obtained, with temperatures of 33°C., 35°C., 39°C., and 41°C. respectively, is shown in a tabulated form on next page.

It will be noticed from this tabulated report that nearly all the tests made with a temperature of 33°C. produced a sensation of cold; while all the tests made with

A STUDY OF THE TEMPERATURE SENSE. 553

TABLE OF TEMPERATURE REACTIONS IN TEN DIFFERENT SUBJECTS TO DETERMINE THE HIGHEST TEMPERATURE GIVING A SENSATION OF COLD AND THE LOWEST TEMPERATURE GIVING A SENSATION OF WARMTH IN THE FIFTEEN AREAS OF THE SURFACE OF BODY, MENTIONED BELOW.

(Tests were made with glass test-tubes containing water, at the different temperatures given below.)

Temperature in centigrade degrees . .		30°	33°	35°	39°	41°
PARTS OF BODY.		No. of reactions	No. of reactions	No. of reactions	No. of reactions	No. of reactions
1. Feet	Warm	0	0	4	9	10
	Cool	9	9	4	1	0
	Pressure	1	1	2	0	0
2. Lower leg—inside . .	Warm	0	0	1	3	9
	Cool	10	6	4	2	0
	Pressure	0	4	5	5	1
3. Lower leg—outside . .	Warm	0	0	1	4	9
	Cool	10	9	4	2	0
	Pressure	0	1	5	4	1
4. Thigh — inside . . .	Warm	0	0	1	4	10
	Cool	10	10	5	3	0
	Pressure	0	0	4	3	0
5. Thigh — outside . . .	Warm	0	0	0	4	10
	Cool	10	10	5	4	0
	Pressure	0	0	5	2	0
6. Abdomen	Warm	0	0	0	3	10
	Cool	9	10	5	4	0
	Pressure	1	0	5	3	0
7. Chest	Warm	0	0	0	3	10
	Cool	9	9	7	4	0
	Pressure	1	1	3	3	0
8. Front part of neck . . .	Warm	0	0	0	4	10
	Cool	9	10	6	1	0
	Pressure	1	0	4	5	0
9. Face	Warm	0	0	0	3	10
	Cool	9	10	4	3	0
	Pressure	1	0	6	4	0
10. Upper arm	Warm	0	0	1	3	10
	Cool	10	9	3	3	0
	Pressure	0	1	6	4	0
11. Forearm	Warm	0	0	1	2	10
	Cool	10	9	3	3	0
	Pressure	0	1	6	5	0
12. Back part of neck . . .	Warm	0	0	0	2	10
	Cool	10	9	5	2	0
	Pressure	0	1	5	6	0
13. Upper spine	Warm	0	0	0	2	10
	Cool	10	9	6	3	0
	Pressure	0	1	4	5	0
14. Lower spine	Warm	0	10	0	2	10
	Cool	10	0	6	3	0
	Pressure	0	0	4	5	0
15. Hands	Warm	0	0	1	2	10
	Cool	10	9	2	3	0
	Pressure	0	4	7	5	0

a temperature of 41°C . gave a sensation of heat; and the tests made with temperatures of 35°C . and 39°C . gave in some cases a sensation of warmth, in others pressure, and in others cold.

Another series of tests was made with ten different subjects, by dipping the whole hand into water of different temperatures, for the purpose of determining the highest temperature which produced a sensation of cold, and the lowest temperature which produced a sensation of heat. It was found in every case that a temperature of 1°F . above the surface temperature of the hand produced a sensation of heat, and a temperature of 1°F . below the surface temperature of the hand produced a sensation of cold. The surface temperature of the hand was noted in all these different tests; and it was found to be from 90°F . to 95°F . on the back of the hand, and from 92°F . to 97°F . on the palm of the hand, with the hand closed.

From these two series of tests it was demonstrated that the temperatures which give rise to sensations of heat or cold depend on the surface temperature of the part tested, and also on the amount of surface exposed to heat or to cold. They also show that a sensation of cold produced by a temperature near the surface temperature of the part tested is more readily detected than a sensation of heat produced by a temperature near that of the surface of the part tested; at least such is the case when the tests are made with test tubes.

The water in the test-tube and the water into which the whole hand was dipped, produced a sensation of cold at practically the same temperature—a temperature of about 33°C . A temperature of 34°C . gave a sensation of heat when the whole hand was exposed, while with the test-tube it required a temperature of 39°C . to 41°C . in order to produce a sensation of heat.

The results of these tests would seem to indicate that the surface of the body is more sensitive to temperature below its own surface temperature than to temperatures above it.

To determine the highest temperature at which sensations of cold are painful in the different parts of the surface of the body, ten subjects were tested in all the different parts of the body, shown in Figs. 1 and 2, with temperatures varying from 0°C. to 20°C. The tests were made with test-tubes containing water. From these tests it was found that 0°C. temperature in every case produced pain in all parts of the body; and in a number of cases pain was produced with a temperature of 5°C. In the parts of the body that are most sensitive, cold is felt as pain at a higher temperature than in parts that are less sensitive. The different reactions to these various temperatures is shown here in tabulated form, page 556.

To determine the lowest temperature at which heat will cause pain in the various parts of the body, a series of tests similar to those just described with reference to cold was made, with temperatures varying from 55°C. to 70°C. In the majority of cases a temperature of 65°C. produced pain in all the different parts of the body. Heat was felt as pain at lower temperatures in the most sensitive parts. A detailed report of these tests is shown in the tabulated form, page 557.

Tests were also made on ten subjects to determine the highest temperature at which cold sensations become painful, and the lowest temperature at which heat sensations become painful, when the whole hand is exposed. These tests were made with a Fahrenheit thermometer. It was found that a temperature of from 40°F. or 10°C. to 42°F. or 11°C. was the highest temperature at which cold would cause pain in each case; and a temperature of from 120° to 123°F. or 49° to 51°C. was the lowest temperature at which heat would cause pain in every case. A very interesting fact noticed in connection with the experiments was that in nearly every case pain was not produced until the hand had been exposed from 15 to 30 seconds. The sensation during this time was that of cold, pain then taking the place of cold, and lasting from one to two minutes and then disappearing. The sensation of cold was

TABLE OF TEMPERATURE REACTION IN TEN DIFFERENT SUBJECTS TO DETERMINE THE HIGHEST TEMPERATURE AT WHICH COLD WILL CAUSE PAIN IN THE FIFTEEN AREAS OF THE BODY MENTIONED BELOW.

(Tests were made with test-tubes containing water at the different temperatures given below.)

Temperature in centigrade degrees .		0°	5°	10°	15°	20°
PARTS OF BODY.		No. of reactions	No. of reactions	No. of reactions	No. of reactions	No. of reactions
1. Feet	Cold	0	3	8	9	
	Unpleasantly cold	1	5	2	1	
	Pain	9	2	0	0	
2. Lower leg—inside	Cold	0	2	5	9	
	Unpleasantly cold	1	8	5	1	
	Pain	9	0	0	0	
3. Lower leg—outside . .	Cold	0	2	4	8	
	Unpleasantly cold	0	8	4	2	
	Pain	10	0	2	0	
4. Thigh—inside	Cold	0	2	3	8	
	Unpleasantly cold	0	7	6	2	
	Pain	10	1	1	0	
5. Thigh—outside	Cold	0	1	0	6	
	Unpleasantly cold	0	5	5	4	
	Pain	10	4	5	0	
6. Abdomen	Cold	0	1	5	6	
	Unpleasantly cold	0	4	5	4	
	Pain	10	5	0	0	
7. Chest	Cold	0	1	2	6	
	Unpleasantly cold	0	4	4	4	
	Pain	10	5	4	0	
8. Front part of neck	Cold	0	4	3	7	
	Unpleasantly cold	0	2	4	3	
	Pain	10	4	3	0	
9. Face	Cold	0	3	4	7	
	Unpleasantly cold	1	5	4	3	
	Pain	9	2	2	0	
10. Upper arm	Cold	0	3	4	8	
	Unpleasantly cold	0	4	4	2	
	Pain	10	3	2	0	
11. Forearm	Cold	0	3	2	8	
	Unpleasantly cold	0	5	7	2	
	Pain	10	2	1	0	
12. Back part of neck	Cold	0	4	3	8	
	Unpleasantly cold	0	4	6	2	
	Pain	10	2	1	0	
13. Upper spine	Cold	0	2	2	6	
	Unpleasantly cold	0	2	6	4	
	Pain	10	6	2	0	
14. Lower spine	Cold	0	2	2	6	
	Unpleasantly cold	0	2	4	4	
	Pain	10	6	4	0	
15. Hands	Cold	0	6	2	9	
	Unpleasantly cold	0	2	5	1	
	Pain	10	2	3	0	

Cool in the least sensitive parts and cold in the most sensitive parts.

TABLE OF TEMPERATURE REACTION IN TEN DIFFERENT SUBJECTS TO DETERMINE THE LOWEST TEMPERATURE AT WHICH HEAT WILL CAUSE PAIN IN EACH OF THE FIFTEEN AREAS OF THE BODY, MENTIONED BELOW.

(Tests were made with glass test-tubes containing water at the different temperatures given below.

Temperature in centigrade degrees . . .		55°	60°	65°	70°
PART OF BODY.		No. of reactions	No. of reactions	No. of reactions	No. of reactions
1. Feet	Hot	Warm in the least sensitive parts, unpleasantly warm in the most sensitive parts.	7	0	Painful all over surface of body.
	Unpleasantly hot		1	3	
	Pain		2	7	
2. Lower leg—inside	Hot		7	0	
	Unpleasantly hot		1	3	
	Pain		2	7	
3. Lower leg—outside	Hot		7	0	
	Unpleasantly hot		1	3	
	Pain		2	7	
4. Thigh—inside . .	Hot		6	0	
	Unpleasantly hot		2	3	
	Pain		2	7	
5. Thigh—outside .	Hot		6	0	
	Unpleasantly hot		2	3	
	Pain		2	7	
6. Abdomen	Hot		5	0	
	Unpleasantly hot		3	3	
	Pain		2	7	
7. Chest	Hot		7	0	
	Unpleasantly hot		2	3	
	Pain		1	7	
8. Front part of neck	Hot		7	0	
	Unpleasantly hot		2	3	
	Pain		1	7	
9. Face	Hot		7	0	
	Unpleasantly hot		1	3	
	Pain		2	7	
10. Upper arm	Hot		7	0	
	Unpleasantly hot		1	3	
	Pain		2	7	
11. Forearm	Hot		6	0	
	Unpleasantly hot		2	3	
	Pain		2	7	
12. Back part of neck	Hot		6	2	
	Unpleasantly hot		2	3	
	Pain		2	5	
13. Upper spine . . .	Hot		3	3	
	Unpleasantly hot		5	2	
	Pain		2	5	
14. Lower spine . . .	Hot		3	3	
	Unpleasantly hot		5	2	
	Pain		2	5	
15. Hands	Hot		6	0	
	Unpleasantly hot		2	3	
	Pain		2	7	

again felt and continued while the hand was exposed. The same thing was observed with reference to heat; but, as a rule, the time of exposure before pain was produced was slightly longer, and the period during which pain was experienced was a little shorter, than with the cold. When the sense of pain passed away, the sensation of heat remained while the hand was exposed. Temperatures a few degrees higher or lower would cause pain the instant the hand was placed in the water, and would continue for a longer period than with the temperatures given above.

By a comparison of the tests made for pain with these different temperatures, it will be seen that the temperature that will cause pain when applied to the surface of the body, depends largely on the amount of the surface exposed, and to some degree on the length of time of the exposure. With the test-tube applied to the surface of the body, a temperature of 0° C. was necessary to cause pain; while, with the whole hand exposed, a temperature of 10° C. was sufficient to bring the same results, and this was even more painful than that produced by the test-tube, and the pain was of an entirely different character. Also, with reference to heat, a temperature of 65° C. was necessary to produce pain with the test-tube, while a temperature of 50° C. or 120° F. caused pain when the whole hand was exposed.

To determine the relation between the number of "cold spots," and the sensitiveness to cold in the different parts of the body, and between the number of "hot spots," and the sensitiveness to heat in the different parts of the body, tests were made as follows:

Five different healthy persons were taken, and circles two centimetres in diameter were marked out in each of the fifteen different areas of the surface of the body, as shown in Figs. 1 and 2. A brass rod tapered to a fine point was the instrument used to detect the "cold spots" and the "hot spots." In testing for the "cold spots" the instrument was cooled by placing it in ice water; and in testing for "hot spots" the instrument was

heated by placing it in water at 120° to 140°F. The whole surface within each of these different circles in the different parts of the body was carefully tested to detect the number of "cold spots" and the number of "hot spots" in each circle. These were marked with ink, and the number in each of the fifteen different parts of the body shown in the figures counted in each of the five cases tested. By comparing the number of "cold spots" in each circle of any part of the body with the sensitiveness to cold in that part of the body, it was found that the part of the body most sensitive to cold did not contain a greater number of "cold spots" than a circle located in some other part of the body, less sensitive to cold. The parts of the body that were less sensitive to cold frequently had more "cold spots" than parts that were more sensitive to cold. That is, the tests seemed to prove the fact that the sensitiveness to cold in the different parts of the body did not depend upon the number of "cold spots" within any given area, or within the circle marked out in these parts. This is contrary to the idea held by Goldschneider and others who claim that in the parts of the body where the skin is most sensitive to heat or to cold the corresponding class of spots is relatively frequent. The number of "cold spots" in each circle on each of the different parts of the body is shown in Fig. 3.

In these tests it was observed that there were two classes of "cold spots,"—one class which, when stimulated with moderate cold, gave a sensation of icy cold; another class which felt cool when stimulated with moderate cold; *i. e.*, the same object may feel cool to one spot and icy cold to another.

The sensitiveness to heat in any part of the surface of the body did not have a relative number of "hot spots." The parts most sensitive to heat frequently had no more "hot spots" than others less sensitive to heat. It was proven that the "hot spots," when stimulated with cold, gave a sensation of cold; and the "cold spots," when stimulated with heat, gave a sensation of heat; so

FIG. 3.

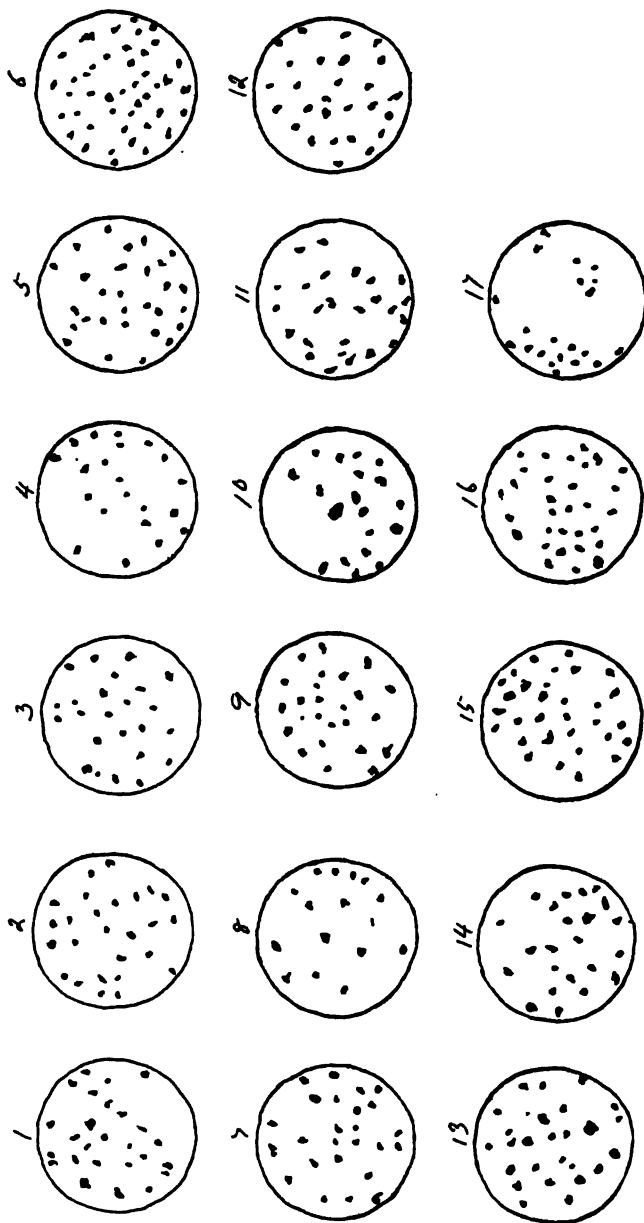


Fig. 3 represents the number of cold spots in a circle two centimetres in diameter in each of seventeen different parts of the body.

1. Forearm, outside ; 2. Forearm, inside ; 3. Upper arm, outside ; 4. Upper arm, inside ; 5. Cheek ; 6. Forehead ; 7. Chest ; 8. Abdomen ; 9. Thigh, inside ; 10. Thigh, outside ; 11. Leg, inside ; 12. Leg, outside ; 13. Upper part of foot ; 14. Neck, in front ; 15. Upper spine ; 16. Lower spine ; 17. Back of the hand.

that we are led to conclude, contrary to the opinions of Blix and Goldschneider, but in harmony with the teaching of Dessoir, that there are not two separate sets of end organs, one for heat and one for cold, but rather that the sensation of heat or cold depends upon the kind of stimulus operating on a given point, and not on the point irritated. And further, if one hand be placed in water of 20°C . and held for five minutes, then placed in water of 25°C ., a sensation of warmth is produced; while to the hand not previously placed in the water of 20°C ., a sensation of cold is produced by water at 25°C .

And again, if one hand is placed in water of 40°C . for five minutes, and then in water of 35°C ., the water of 35°C . gives a sensation of cold to the hand previously placed in water of 40°C . But to the hand not previously placed in the water of 40°C ., a temperature of 35°C . gives a sensation of warmth.

How are we to account for the fact just stated—that the same objective temperature may cause a sensation of both heat and cold in the same individual, if we hold to the theory of two separate end organs, one capable of being stimulated by cold and not by heat, and the other capable of stimulation by heat and not by cold?

Then, again, "hot" and "cold" are, in physics, only relative terms. It is not at all natural to suppose that absolutely different apparatus, distinct and separate, each occupying a local position of its own, should be required for these two sensations which are developed by the same form of energy in different quantities. We therefore conclude that there are not two sets of end organs concerned with the temperature sense, and consequently not two independent senses, one of heat and one of cold.

Heat and cold are to the temperature sense what light and darkness are to the sense of sight. Cold is the absence of heat, as darkness is the absence of light.

To determine the modifying influences of heat and cold on the temperature sense, tests were made with ten subjects by placing the hand in water of five

different temperatures; viz., at 10°C., 20°C., 30°C., 40°C., and 50°C., making a series of fifty tests. One hand was exposed to each of these temperatures for five minutes, then both hands were placed in water five degrees above, and again in water five degrees below, the temperature of the water in which the hand had been held for five minutes; and the sensation in each case compared with the sensations in the hand that had not been subjected to any temperature outside its own normal before these tests were made. A summary report of these tests in the ten different cases for each of the different temperatures is as follows:

1. Right hand is held in water of 10°C. for five minutes. Both hands are then placed in water of 5°C. Both hands feel cold in the water of 5°C., but the sensation of cold is greater in the right hand, which has previously been exposed to a temperature of 10°C. In water of 15°C. the right hand feels for a moment slightly warm, then cold, but not unpleasantly cold. The left hand feels colder than the right hand. The sensation in the left hand is distinctly cold, while the sensation in the right hand, which follows that of warmth, is only slightly cold.

2. Right hand is placed in water of 20° C. for five minutes. Both hands are then placed in water of 15° C., which gives a sensation of cold to both hands; but the sensation of cold is greater in the right hand, which has previously been exposed to a temperature of 20° C. Water of 25° C. gives a sensation of warmth to the right hand and a sensation of cold to the left.

3. The right hand is placed in water of 30° C. for five minutes. Both hands are then placed in water of 25° C. The sensation to both hands is that of cold. The water of 25° C. feels slightly less cool to the right hand than to the left. The difference is slight and rather indistinct. Water of 35° C. gives a sensation of warmth to both hands. The feeling of warmth is greater to the right hand at 35° C. than to the left.

4. The right hand is placed in water of 40° C. for five

minutes. Both hands are then placed in water of 35°C . The water at 35°C . is cold to the right hand, which has previously been exposed to a temperature of 40°C ., and warm to the left hand, which has not been subjected to any temperature outside its own normal previous to the test. Water of 45°C . is warm to both hands, but is warmer to the right hand than to the left.

5. The right hand is placed in water of 50°C . for five minutes. Both hands are then placed in water of 45°C ., which gives a sensation of heat to both hands, but this is less marked in the right hand than in the left hand. Water of 55°C . is decidedly hot to both hands, but this temperature is more painful to the right hand than to the left.

It will be seen from the above that the quality or quantity of the sensation produced by a given temperature when brought in contact with a healthy skin, and with the temperature apparatus healthy and intact, depends, to certain limits at least, on the temperature of the skin at the point tested. This principle has been elaborated and defended in detail by Hering as follows:

"As often as the thermic apparatus in any spot in the skin has a temperature which lies above its own zero point, we have a sensation of heat; in the contrary case, a sensation of cold. Either sensation is so much the more marked, or stronger, the more the temperature of the thermic apparatus at the time varies from the temperature of its own zero point. The zero point of any part of the skin is the exact objective temperature which at that point will produce no sensation of heat or cold."

It is obvious, however, from the preceding tests that contrast, relativity, and exhaustion must enter largely into the explanation of all these changes in the temperature sensations.

To determine the reaction time to heat and to cold, tests were made with ten different subjects, and the average reaction time of five different tests for each of the several different temperatures was noted. It was proven that the reaction time varied with different tem-

peratures and from different parts of the body. It also varied with different individuals. Cold, as a rule, is felt quicker than heat. But this is due undoubtedly to the fact that the skin is a poorer conductor of heat than the metal that is used to make contact with the skin in making the tests, and consequently heat passes from the skin to the metal more readily than it passes from the metal to the skin. Consequently the nerves in the skin are stimulated quicker with cold than with heat.

The true reaction time or the time left after all sources of error are eliminated, is undoubtedly the same for sensations of heat and of cold of equal intensity.

Below is a table of the average reaction time of five sets of tests of five subjects, taken from five different parts of the body. The time is expressed in thousandths of a second in each test.

The electric chronometer of d'Arsonval was used in measuring the reaction time:

TABLE OF THE AVERAGE REACTION TIME TO COLD AT 0° C. OF FIVE DIFFERENT TESTS IN EACH OF FIVE DIFFERENT CASES FROM THE DIFFERENT PARTS OF THE BODY EXPRESSED IN THOUSANDTHS OF A SECOND.

	CASE 1.	CASE 2.	CASE 3.	CASE 4.	CASE 5.
From foot to hand . . . . .	.234	.230	.138	.248	.396
From thigh to hand . . . . .	.134	.170	.108	.230	.324
From abdomen to hand . . . . .	.176	.162	.126	.180	.180
From hand to hand . . . . .	.180	.128	.126	.230	.206
From face to hand . . . . .	.098	.128	.074	.168	.068

TABLE OF THE AVERAGE REACTION TIME TO HEAT AT 60° C. OF FIVE DIFFERENT TESTS IN EACH OF FIVE DIFFERENT CASES FROM THE DIFFERENT PARTS OF THE BODY EXPRESSED IN THOUSANDTHS OF A SECOND.

	CASE 1.	CASE 2.	CASE 3.	CASE 4.	CASE 5.
From foot to hand . . . . .	.682	.204	.146	.334	.354
From thigh to hand . . . . .	.428	.208	.180	.216	.240
From abdomen to hand . . . . .	.312	.148	.166	.144	.216
From hand to hand . . . . .	.282	.156	.160	.204	.256
From hand to face . . . . .	.164	.140	.122	.150	.126

SUMMARY.

The thermic mechanism is that part of the nervous system which takes cognizance of changes of temperature. It may be considered as made up of three parts; viz., an end organ, an afferent nerve, and a central nerve centre. The end organs are located in the skin and mucous membrane of the body. It is not yet proven that there is a definite temperature area on the cerebral cortex. The experiments of Dessoir would indicate that each center was a temperature center. There is only one kind of end organ which is capable of stimulation by "heat" and by "cold." The temperature end organs are not excitable to pressure and electricity.

Changes of temperature between 5°C. and 60°C. produce sensations of cold or of heat in all parts of the body with little or no pain. Temperatures below 5°C. and above 60°C. cause pain, in addition to sensations of cold or heat. This is when the tests are made with test-tubes containing water of different temperatures. When the whole hand is exposed, pain is caused by a temperature of 10°C. or below, and by a temperature of 50°C. or above. Between these two temperatures, heat and cold are felt, accompanied with little or no pain. The sensations of heat, cold, and pain caused by the different temperatures vary in different individuals and in different parts of the body of the same individual. They also depend upon the size of the surface stimulated, the period of irritation or stimulation, and upon the thickness, the conductivity, and the temperature of the skin.

The relative sensibility of the different parts of the body to heat and to cold is indicated by the shading in Figs. 1 and 2 shown on page 551. The parts most deeply shaded are most sensitive to both heat and cold.

In our ordinary experience sensations of heat in any part of the skin are induced:

1. By a checking of a radiation of heat in any part of the skin while the blood supply remains unaltered.
 2. By contact with an object or medium of higher temperature.
-

3. By an increase in heat from the interior of the body, as in a local hyperæmia.

Sensations of cold are induced : .

1. By an increase of convection of heat from the skin while the local supply of blood remains unaltered.

2. By contact with objects of the same objective temperature as the surrounding air, but which conduct heat more readily than the air.

3. By contact with an object or a medium colder than the skin.

4. By lessening of the interior warmth of a part, as by the contractions of the blood vessels which supply a portion of the skin.

The skin is most sensitive to changes of temperature near its own zero point.

When the whole hand is subjected to varying temperatures, changes of $\frac{1}{2}^{\circ}\text{F.}$ to 1°F. may be detected near the zero point of the thermic apparatus in the skin.

The reaction time to heat and to cold varies with the temperature that is used in making the tests, with the part of the body tested, with the conductivity of the skin to heat, and with the conductivity to heat of the instrument used in making contact with the skin.

The principal reasons that we feel objects that are cold, when brought in contact with the skin, quicker than those that are warm, is that the skin, being a very poor conductor of heat, absorbs heat slowly from an object of a higher temperature than itself; while other objects, which are cooler, and which in nearly every instance are better conductors of heat than the skin, absorb heat quite readily from the skin, and hence a sensation of cold is felt at once.

The true reaction time to heat and to cold, or the reaction time after all sources of error are eliminated, is practically the same for sensations of heat and of cold of equal intensity in the same part of the body.

Whatever increase in the reaction time to heat or to cold there may be over the reaction time to touch, is due mainly, if not entirely, to the time occupied in raising the temperature of the skin in one instance, and lowering it in the other, to a point sufficiently far from the normal to produce a stimulation.

A CASE OF GLIOMATOSIS OF THE SPINAL CORD (AND SYRINGOMYELIA), WITH RECURRENT HÆMORRHAGES.

BY CHARLES L. DANA, M.D.

IN reporting the following case, it affords an opportunity of calling attention to the, at times, awkwardness and inapplicability of the word "syringomyelia," and of suggesting that the term "gliomatosis" of the cord would be a better generic name. In a good many cases, the cavity of the spinal cord is a small and secondary matter, having little to do with the production of the symptoms. In all cases, the primary and essential thing is the gliomatous change and infiltration produced by the new growth. There are cases of gliomatosis with very little cavity formation, my own being an example of this kind. There are, on the other hand, often cavities in the spinal cord with which there is no gliomatosis and with which few symptoms occur. In hydromyelia, for example, it is well known that the cord may have a cavity and but slight evidence of it be present. I have reported a case in which there was a number of small cavities in the anterior horns of the spinal cord produced by hæmorrhages and associated with multiple neuritis. The main symptoms were caused, undoubtedly, by the neuritis, and the syringomyelia was of little practical importance.

I do not know of any other disease which is named after the hole in it.

The study of gliomatosis or gliomatous infiltration of the nervous centres, might well be taken up from an independent standpoint and discussed just as we discuss

syphilis or tuberculosis of the nerve centres. The result of abandoning the word "syringomyelia," and substituting for it "gliomatosis," with or without cavity formation, would be, I believe, an advantage to our nosology, and a help in our clinical and pathological work.

The following case was one of a gliomatous infiltration of the spinal cord in which the symptoms simulated very much a transverse myelitis. The disease progressed very slowly, and the patient died finally from a severe intramedullary hæmorrhage. The autopsy showed that while there was a slight amount of cavity formation, yet the gliomatous infiltration with secondary hæmorrhages was the distinguishing pathological feature. In the clinical history and the pathological changes there are instructive features :

J. K., *æt.* 35, German, was admitted to my service in Bellevue Hospital, October 15, 1891. He had been for some time under the care of Dr. T. J. Kearney, of this city, and I am indebted to him for the opportunity of studying the case.

The history given of his symptoms was that he had been a healthy man, married, and had been a hard-working laborer, never infected with syphilis, and moderate in alcoholic indulgence. About fifteen months before admission, he noticed first of all a pain in the right leg extending down along the course of the crural nerve, or, as he described it, running from the right groin through to the back. The pain was dull in character, but sometimes sharp, and was, he said, worse after eating. The leg felt numb and heavy and after a time it became weak and stiff, especially if he sat for a time. The pain and numbness extended slowly into the left leg. After suffering a short time with these pains, he suddenly lost power in both legs and for three months was confined in bed with paraplegia. He gradually improved and he got so that he could walk about, though with considerable difficulty. In this state of partial paraplegia he was admitted to the hospital, with the suggestion from Dr. Kearney that possibly he had a tumor of the spinal cord.

Physical examination at the time of admission showed him to be a person of medium height, well nour-

ished and muscular. Thoracic and abdominal viscera normal. He complained of pain in the right groin and back, as described above. There was great exaggeration of the reflexes of the legs, both deep and superficial. The legs were very weak and stiff, but the right one was much more seriously involved. There was anæsthesia which was chiefly marked in the right leg and extended up to the level of the twelfth dorsal spine. There was no atrophy, no especial ataxia, some weakness of the bladder and constipation, and occasionally a loss of sensation during urination. There was some involuntary twitching, chiefly of the muscles of the right leg. The patient presented the general clinical picture of a case of transverse myelitis. The possibility of his having a spinal tumor was considered, but I did not feel justified in saying that such tumor existed. The tests for anæsthesia were made on several occasions and the records show that this was complete for all forms of sensibility. There was no disturbance of the arms or face. The pupils were normal and there was no visual trouble. The patient remained in about the same condition for two months and then passed out from my observation. Nine months afterward, and about two and a half years from the time of onset of his trouble, he was readmitted to the hospital. At that time there was a total paralysis of motion and sensation in both legs. The reflexes were greatly exaggerated. He was unable to pass his water and it had to be drawn with the catheter. The bowels were constipated. The anæsthesia reached as high as the twelfth dorsal spine. He suffered the most intense paroxysms of pain which were felt across the abdomen. He also had severe headaches. He slept very little on account of the intense pain, and chloral and morphine seemed to have but little effect in deadening it. He had on the second day some involuntary fecal evacuations and occasionally he vomited. He grew rapidly weaker and on the fourth day fell into a stupor, and died from exhaustion. He had during the third day of his stay a temperature of 101° ; the rest of the time his temperature was normal.

The post-mortem showed nothing particularly abnormal except as regards the spinal cord. On opening the spinal canal, the meninges were seen to be perfectly normal; there was no congestion or discoloration or thickening and no exudate. There was a fusiform enlargement of the spinal cord at the level of the eighth dorsal

segment and extending up and down for about two and a half inches. The cord was swelled to twice its normal size, but showed absolutely no external change. On making a section it was found that in the middle portion of the swelling there was a solid clot of comparatively fresh character occupying the centre of the spinal cord, and destroying nearly all of the tissue, leaving only a thin margin at the periphery. The hæmorrhage extended up and down for a distance corresponding with the length of the swelling, that is, somewhat over two inches, but it was less in amount at the upper and lower parts. In the neighborhood of the clot the tissue seemed abnormal, but not particularly softened. Sections above and below the lesion showed evidences of ascending and descending degeneration. The cord was hardened carefully in Müller's fluid and alcohol and subsequently stained with carmine, hæmatoxylon and Weigert's solution. Microscopical examination made by myself, assisted also by Drs. Judson C. Smith and George R. Elliott, showed that in the region of the fusiform swelling there was a considerable amount of gliomatous tissue which had taken the place of the normal cord structure and that in this gliomatous tissue were small hæmorrhages. The greater part, however, of the swelling was taken up by the fresh hæmorrhage. Fig. 8 D. The conclusion from our observation of the diseased part was, that the patient had had a central glioma of the cord, beginning in the neighborhood of the ninth or tenth dorsal segment, and that there had been a hæmorrhage in this part in the early stage of his disease, this hæmorrhage causing the acute paraplegia from which he had suffered. He had partially recovered from this, but the process continued, and finally another much larger hæmorrhage had occurred, producing the total paraplegia and intense pains from which he finally suffered and died.

In the lower part of the diseased portion of the cord was a small focus of gliomatous tissue situated in the posterior column of the right side and lying close against the posterior horn, very much in the situation of the part which is affected in locomotor ataxia (see figure 12D). The lesion at this point I consider to have been the cause of the intense pain which he suffered for so long in the right groin and right hip. A clinical feature of interest in his case was the very great pain which he suffered during the whole course of the disease and the

intense pain which accompanied the terminal hæmorrhage. It is usually stated that hæmorrhages into the substance of the cord are not painful, but in this case the reverse was true to an extraordinary extent. No doubt, the great destruction and tension put upon the cord tissues were the cause of the symptoms in this instance. The very striking and well-localized focus of gliomatous tissue in the neighborhood of the posterior horn suggests the probability that it is along here that nerves pass which are particularly affected in neuralgic disturbances due to lesions of the spinal cord. I have already expressed the opinion, however, that an attempt to find the so-called pain tracts is futile. It seems to me, probable, in the light of modern psychology, that pain is not to be classed among the special sensations, but is to be considered rather a modification of ordinary forms of sensibility and that, therefore, the attempt to find pain tracts is useless. There are painful sensations, but there are, strictly speaking, no pain nerves.

A study of the secondary degenerations of the spinal cord in this case is of some interest. The cuts which accompany this article show the course of the ascending and descending degenerated tracts. They are drawn from specimens with the help of the Edinger apparatus and represent accurately the situation of the degenerated tracts. It will be seen that although the lesion is most marked at the height of the eighth and ninth dorsal segments and that the cord is nearly cut across there, yet there is hardly any ascending degeneration of the cerebellar tracts; on the other hand, the antero-lateral ascending tracts of Gowers show distinct evidence of degeneration, (see Figs. 1 C to 5 D.)

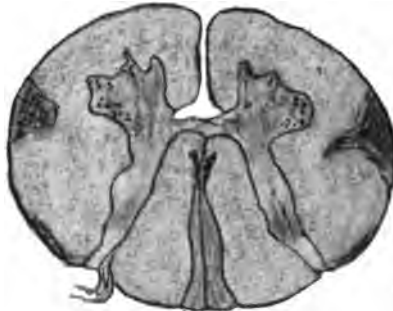
The situation and the extent of the ascending tracts seems to differ very considerably, as shown in the various cases that have been reported of ascending degeneration. When showing this case before the New York Neurological Society, I collected a number of cases from other authors showing this variation.

Finally, with regard to the relation of hæmatomyelia to syringomyelia, the literature of the subject shows that hæmorrhages into the spinal cord complicating syringomyelia are not particularly rare, and it seems to me that it is not unlikely that a good many, if not all cases of so-called idiopathic hæmatomyelia, may be cases of syringomyelia. The increasing number of cases also of syringomyelia which present the symptoms to a great

No. 1



1 C



4 C



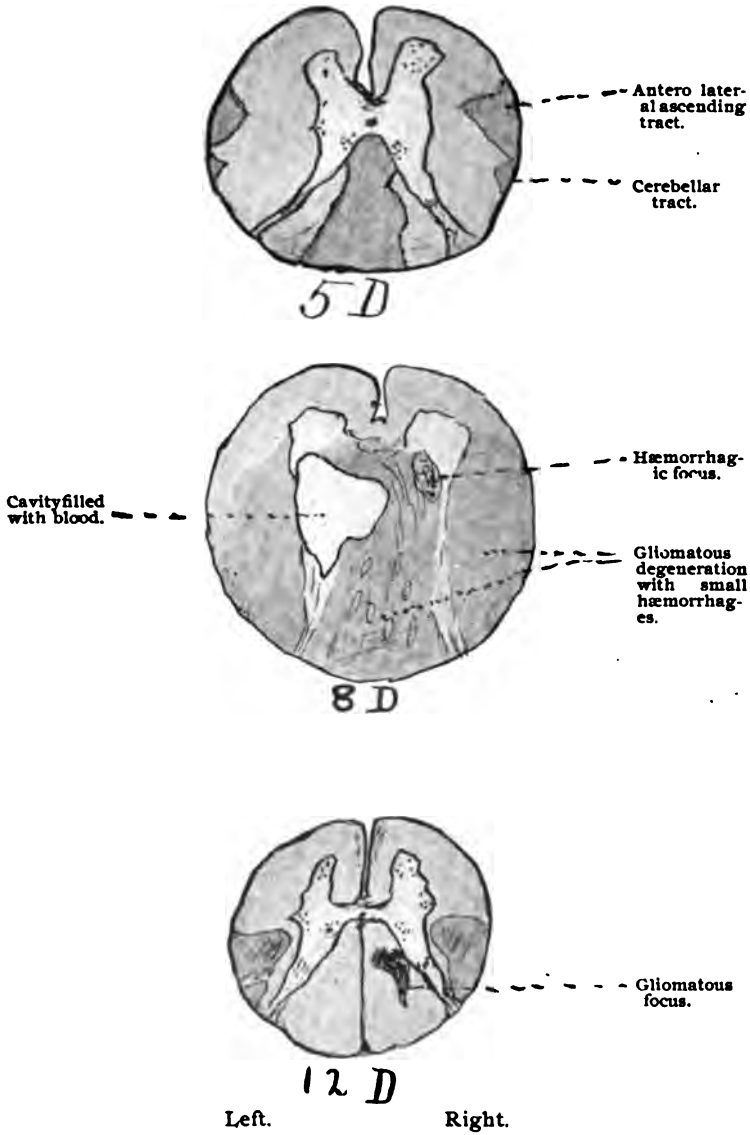
6 C



2 D

Left.

Right.



extent of transverse myelitis, leads one to think that, perhaps, there are a good many unreported cases of syringomyelia which go down in our records as cases of transverse myelitis.



SUMMARY.

The abandonment of the word syringomyelia as a clinical term and the use of the word gliomatosis or gliosis. This is recommended because there is so often gliosis without cavity.

The occurrence of spontaneous hemorrhage into the spinal cord an evidence of gliomatus in filtration; primary hæmatomyelia often an indication of some small gliomatous deposit.

The simulation by syringomyelia of acute or chronic transveres myelitis. The differentiation of disturbances in sensibility is an indication of disorganization of the central gray matter from various causes, it is not always present in syringomelia and is often present in traumatic myelitis involving the central gray.

There are probably no specific pain tracts, though there may be paths along which manifest modifications of cutaneous or tissue sensibility especially tend to travel.

Treatment of Cerebral Tumors.—At the recent eleventh meeting of the International Congress of Medicine, held in Rome, Lavista, of Mexico, spoke of the removal of tumors of the cerebrum. One of the most curious cases that has come under his observation was that of a young man who, after an extirpation three times repeated of a voluminous fibroma of the shoulder, manifested symptoms of acute encephalitis, complicated with epileptiform phenomena and paralysis of the motor oculi of the right side; coma soon followed. Suspecting the existence of a cerebral tumor situated in the corona radiata and invading the internal capsule, he proceeded to trephine, when a neoplasm presented itself, about the size of a hen's egg and having its seat in the region mentioned; this was at once removed without serious loss of blood, and great temporary relief followed. The patient subsequently died of cancer of the stomach. Lavista remarks that he knows of hardly another case of recovery after the ablation of cerebral tumors properly so called. Recovery readily takes place after removal of cysts, unless there be secondary lesions, or unless complications supervene. By itself, trephining has never contributed to aggravate the situation of patients affected with cerebral tumors; on the contrary, it has always been followed by temporary amelioration, especially in cases of superficial neoplasms. Unfortunately, in deep tumors, the disintegration of the cerebral substance renders impossible the recovery of the patient, but the surgeon should interfere all the same if he hopes to procure for the patient any benefit whatever.

In general, in encephalic lesions it will not do to wait the development of secondary complications, and the physician should operate early on patients affected with a cerebral neoplasm, for when secondary lesions have set in, it will be too late. In doubtful cases, one should first resort to an exploratory craniotomy. E. P. H.

THE GENESIS OF HALLUCINATION, ILLUSION AND DELUSION.¹

BY H. A. TOMLINSON, M.D.,

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TWO years ago I read a paper before this association in which I attempted to make a definition of hallucination, illusion and delusion, based on the conditions in which I believed they had their origin. I will repeat these definitions, asking you to note carefully, if my definition be true, how one condition seems to naturally follow the other.

Hallucination is the presence in consciousness of a series of impressions coming through a special sense, which have been perverted in transmission, or imperfectly related in the receptive centre.

Illusion is the formation of a picture, of which a dream is the type, which is projected on active consciousness from the latent or automatic consciousness, and is composed of a series of analagous pre-existing impressions incongruously arranged

The persistence of an illusion constitutes a delusion, which is, therefore, always a secondary condition.

The object of the present paper is to try to show by a study of the natural history of these states of perverted functional activity, that the conditions which give rise to them form a sequence, and that in their genesis we have another example of development from the simple to the complex, which is so characteristic of evolution in general. Moreover, if this explanation is approximately correct, it furnishes a clear and rational demonstration of these interesting conditions which form the sum total of intellectual perversion in the insane.

I was first prompted to this undertaking by the study

¹ Read by title before the American Neurological Association, Washington, May 30, 1894.

of the early histories of a series of cases of paranoia, with special relation to perversion of the special senses. Since then, by applying the same methods and rules to the study of the special sense perversion in all forms of insanity, I came to the conclusions which are formulated in this paper.

My observation of the mental processes of the insane has taught me to believe that the changes which take place are in the direction of a reduction in type, manifesting themselves in all the varying grades of failure to relate complex conceptions, until the plane of simple ratiocination is again reached. I have also found by studying the mental processes in the sane mind, during adolescence in the higher types, and at all ages in the lower, that hallucination and illusion are quite common, while sometimes marked aberration of cerebral functioning may be present temporarily, without being apparent unless looked for carefully. What we understand as hallucination and illusion in the adult are normal conditions in the infant, as shown by his relation of sensual impressions to pre-existing ones without regard to their origin or effects. A sound of certain intensity, no matter from what source, is always related to the same object. The sensation of pain having followed the touching the hand to the hot stove, all other similar objects will be avoided in the future. Even with older children and adults of a low grade of intelligence, auditory and visual impressions of a certain intensity and volume, will always be related to some pre-existing image as their source, without regard to their real origin.

Accepting the, to me, apparent truth of these statements, I believe the study of the ordinary mental processes in the sane is the best guide to the study of these same processes when they have assumed an aberrant form, enabling us to estimate their nature and origin, and the degree of influence, which conditions in the environment of the individual have, in producing perversion of activities from their normal plane, without apparent change in the internal conditions.

In watching the development of the child, it will be found that its mental activity is an irregular indefinite response to the external impressions, uninfluenced except by inherited tendencies, until the conception of self in relation to the external world is formed, when we have the beginning of knowledge, and the individual may be said to be conscious, because he has come to a knowledge of himself. At first this knowledge is confined to the relation of the external world to self, and its processes are confined to the relation of the environment to the individual. As impressions increase in variety, form and number, and experiences multiply, the relation of the individual to the environment becomes more and more apparent, and as the appreciation of this relation increases, we approach more and more nearly to the "adaptation of internal to external relations."

It is to be noted, however, that there is a constant tendency, in the absence of sufficiently various and numerous new external impressions, or their dominance by pre-existing ones, in relation to some extraordinarily active present condition in the environment, to lapse into the relation of the environment to self, and to the predominance of what we know as self-consciousness or the ego. This tendency to lapse into self-consciousness is constantly present in young children, and is also quite manifest in the lower types of development among adults, while infants, the insane, and to a varying extent the lower types above referred to, seem to be reduced to the perception of tactual impressions only. It is not uncommon to see an infant undergo a surgical operation, only crying while the knife is cutting, and during a comparatively long interval in the operation, it may actually laugh. The same thing occurs among the insane, as they often inflict upon themselves, or receive severe injuries, without showing the slightest sign of suffering, either at the time or during the repair of the injury. The same is true also in conditions of delirium. However, in cases of melancholia, where intellectual reduction is slight, efforts at suicide by cutting or hanging are often de-

sisted from on account of the suffering caused, and loud complaints of pain are made during the dressing of the self-inflicted wound, which may be only slight. On the other hand, a woman under my charge, in whom there is marked mental reduction with recurring periods of great depression, during which she believes herself to be without sensation, made a desperate effort at self destruction by gouging a hole in her abdominal wall with the blade of an old pair of shears, occupying considerable time in doing the operation, after which she got up and carefully hid the shears, going to bed again and lying there quietly until morning. Fortunately the abdominal wall contained a great amount of fat, and, as the operation was apparently done in the sitting position, she did not get through the fat. The trimming, cleaning and suturing of this large wound was done without eliciting the slightest sign of sensation.

Among the lower types of mental development this same sensual obtuseness is manifested in so-called stolidity, and among this class visual, and auditory, hallucination, and visceral consciousness are quite common, and are manifested in superstition, in the form of religiosity, seeing of ghosts, infliction by witchcraft, etc. This is further proven when these people become insane; their aberration being manifested by some form of religiosity, having for its antecedent condition either auditory or visual hallucination, and often both; the unstable brain gradually giving way from exhaustion as the result of unwonted activity without potential capacity.

The history of two persons under my care illustrates this condition quite aptly. A brother and sister, of a low grade of intelligence, living on a farm inherited from their parents. Neither one was married, but the woman had an illegitimate child. Their farm was valuable, and some individuals in the neighborhood wanted to acquire the property without giving an equivalent value for it. To carry out their purpose they organized a system of persecution, having for its object, the induc-

ing of these two people to part with their property because it was haunted by evil spirits; and they based their hope of success on the known reputation of the owners of the property, as believers in witchcraft and demoniac appearance. Consequently the brother and sister began to witness strange appearances after nightfall, and especially about the barn, when the man went after nightfall to do his work. Both were impressed by these occurrences, but the brother seeing more of them, and being more intelligent as well as more emotional, was more active in his manifestations of disturbance. Believing these manifestations to be supernatural, the two became very much disturbed, with the development of that form of religiosity which results from superstitious fear. At first they believed that they were themselves bewitched, but afterward this same influence extended to their horses and cattle; whose actions under ordinary circumstances would have escaped notice, but now in the light of their actively suggestive surroundings, seemed to be indicative of the same demoniac influence which affected them.

This tension resulted in a very great strain upon a naturally feeble mental organization, bringing about confusion with the perversion of all mental processes; so that the victims of this persecution heard threatening voices everywhere, and everything they saw in their surroundings that was unusual was pregnant with occult suggestion. Then came loss of appetite and sleep, interfering with the nutrition of a naturally unstable and now overtaxed brain, producing confusion, dread, terror, and finally the impulse to self destruction, on the man's part, as the only means of escape from his terrible surroundings. It is worthy of note, that the woman having a lower grade of intelligence and less sensibility, was not so profoundly affected as the man. Consequently the manifestations of perverted cerebral functioning were not conspicuous enough to make her commitment seem necessary, until some time after her brother had been in the institution, and then her active mental disturbance

took the form of a simple animal desire to escape impending physical danger by flight and seclusion, rather than the higher form of an impulse to self destruction.

The feeling which children and some adults have when passing a graveyard is an analagous condition, and the actual fear generated is, so far as my observation goes, always preceded by auditory and visual hallucination, resulting in illusion; the picture being made up of incidents and characteristics previously associated with such an environment.

If you will go through a hospital ward, carefully observing each individual, you will find one patient sitting with a rapt intent expression on his face, another with head bent to one side and leaning forward as if listening intently, the expression varying from complaisance or self satisfaction, to anxiety, dread, fear, or anger. Another will be standing, excitedly gesticulating and denouncing. Still another, sitting with bowed head, a sullen and gloomy expression on his face, suddenly straightens up and strikes the person nearest him; again lapsing into sullen gloom, or continuing the assault, and accompanying his blows with a tirade of denunciation or abuse. All this seems purposeless, but careful observation and questioning will disclose the fact that each of these individuals has heard or seen, and often both, voices and presence, agreeable or disagreeable, pleasing or threatening.

The hallucination of these two senses is most common, and in the majority of cases, so far as my observation goes, auditory and visual hallucination are the basis for most of the delusions developed. Perversion of the olfactory, gustatory, tactual, and muscular sense may be and often are present as concomitants of the belief formed out of the primary illusion, resulting from the auditory and visual hallucination. Visceral consciousness is commonly a most potent factor in the development of the belief that poison is being or has been administered, and the sinking sensation, characteristic of some forms of intestinal indigestion, a bruit of the abdominal aorta, and all sorts of gastric sensations, with

the suffocative feelings attendant upon gastric distention, are perverted to signify the effect of poison, the administration of anæsthetics or narcotics, and electric influence; while among the lower types these sensations are significant of occult or demoniac influence.

In illustration of these conditions the two following cases are given in outline: A woman, under my care some years ago, manifested no signs of mental disturbance on admission, except a high degree of emotional tension with suspicion directed toward her son, without apparent reason. There was a history of slowly progressive change in character extending over a period of years, with recent failure of power of attention, and memory for recent events. The family lived in a part of the city, where on damp nights a strong odor of coal oil was always present. The patient was noticed by her family to have fits of abstraction when she seemed to be intently listening. She also complained that she was often kept awake at night by the neighbors talking, and from what they said she believed that they were talking about her. As mental reduction went on and her self-consciousness became more dominant, the voices of the neighbors were heard after she had retired conspiring to put something on her to defile her person. (A very common belief among women during the climacteric period, who are insane, and it is not at all uncommon for sane women to be mysophobic at this time). The odor to which this woman had been accustomed suggested the means of defilement, and she insisted that certain neighbors nightly entered her room and defiled her person with coal oil. Her attempts at revenge made her removal to the hospital necessary.

Another case illustrates the sequence here predicated. An old man, a missionary minister, who supplemented his income by working a farm, and who had always been noted for the firmness of his convictions, suddenly became insane, developing delusions of self-depreciation, and finally believing that he had committed the unpardonable sin. For two or more years he had suffered from indigestion which was said to have followed an acute attack of kidney disease. When alone or out of doors, the sounds about him became voices charging him with being a sinful man and a hypocrite. He became more and more depressed, until he believed that not only himself, but his wife also would be destroyed for his sin. He warned her of the impulse to kill both himself and

her, to save them from impending torture. This condition necessitated his removal to the hospital. Coming at night into strange and unusual surroundings, added to his confusion and terror, and when he was given a bath he saw in every implement an instrument of torture, and every thing said by the nurses to each other was in relation to his destruction by torture. This condition kept up, and each day he led me to a new place where he saw the nurses go in and out in their preparation for his destruction. His self-consciousness was so intense that every act of others was related to himself, and even the most trivial occurrences were perverted into consonance with the terrible picture ever present in his consciousness.

All of us hear sounds, see sights, and perceive odors and tastes. We are subject to disagreeable tactual sensations, and to visceral consciousness; but we correct our false impressions through the influence of environment on our consciousness. Why is it then that the insane man fails to correct his false impressions, and how are the perversions of special sense function brought about, which produce by their persistence mental aberration? Referring again to what I have said about the tendency to lapse into self-consciousness, and the relation of environment to self, as being the characteristic of the child and the defective, we can easily appreciate how, in an individual who as a result of intense mental strain, physical exhaustion, or whose normal cerebral potentiality is limited, this tendency would become most active, and introspection would be developed to an unusual degree. If this persists, irritability shows itself, and suspicion follows. The actions of others, heretofore a matter of indifference, take on a new meaning and have especial significance. Here again the analogy to the child is apparent. The child's suspicions of strangers, or even of those to whose presence it is accustomed, when there is anything unusual in their appearance or actions and the furtive watchfulness of all unusual actions on the part of those by whom it is surrounded, to be followed probably by irritability, dread and alarm, are apparent to any one who will take pains to observe. This same suspicion is shown by the idiot,

imbecile, and also by the higher grades of defective mental organization. In the development of insanity, after the persistence of irritability and suspicion for a time, with the continually increasing tendency toward introspection, and the relation of all external phenomena to self, dread is added, ordinary sights and sounds have a special purport, and are associated with experiences in the life of the individual which have been untoward or unfortunate. As a result of the constant suspicion and dread, confusion supervenes, and the voices of those by whom the individual is surrounded are heard to utter threats or sneers, to make accusations, or suggest ulterior motives for ordinary actions; while to the sight, the actions of friends or relatives assume a corresponding significance. This self-absorption and indifference to bodily habits and wants, may, and commonly does, lead through autointoxication to tactual, olfactory, or gustatory hallucination. Here again, ordinary every-day experience furnishes us an analogue. It is a very well-known fact that self furnishes the most unsatisfactory subject of study in which we can indulge, and especially where disappointment and failure have been the stimulus to introspection. We say we have the blues, a suggestive term meant to describe the mental and physical discomfort accompanying our self-absorption. It is also a fact, that if we study too long over any undertaking, our confidence in our capacity decreases in proportion to the prolongation of the study, and if lowered vitality exists as a concomitant, our difficulties become greater, doubt and dread hamper us, timidity replaces confidence, or suspicion and resentment arise, only to be dissipated as renewed activity and the evidence of experience show their groundlessness. We have only to realize the persistence of these conditions, and we are brought face to face with insanity. The individual becomes impervious to evidence or demonstration. The persistence of sounds and sights forms a picture of that which is dreaded and feared. Suspicion ends in the certainty of belief, the nature of the belief varying with changes in the environment, governed largely by the

previous experiences of the individual changing; in form, but always having the same substantive basis, the definition of the belief varying with the amount of mental reduction. So that where this is slight, the definition may be constant in form as in the paranoiac, or its analogue, that chronic form of delusional insanity, occurring during the climacteric period, in which auditory hallucination is so definite and persistent. On the other hand, it may vary from moment to moment, as in the rapidly changing phantasmagoria present in acute mania. In all cases of degenerative insanity, either primary or consecutive, where auditory hallucination is so definite and persistent, I believe that the difficulty lies in the conducting tracts. In other words, the perversion occurs in transmission, and this belief is based on my observation of hallucination of this sense in those who are partially deaf.

Just as the ordinary processes involved in the manifestation of consciousness in the sane involve, first the impression through one of the senses, to be followed by impression through one or more of the others; then the picture formed by the process of relation, and the fitting in and combining with analagous pre-existing impressions—the persistence of the picture, its proof by comparison with others, as well as its consonance with like processes in other individuals; so in the insane we have like processes going on in the same regular sequence, the result differing because of the perversion of the elements of the cognition, while the aberrant functioning of the brain in the representative process, leads to incongruous arrangement and confusion. The sequence is complete in the belief based on false premises, and this we call a delusion. The simplest form of this perversion is found in melancholia with delusions, where you can, step by step, prove to the patient the fallacy of his premisses and argument, until he finally admits the entire absence of foundation for his belief; but the belief returns as soon as you are gone, the voice comes again, the vision appears, and the belief assumes its old form, or varies in the direction of its definition, and maybe assumes some new form more elaborate than its predecessor.

TWO CASES OF INGRAVESCENT CEREBRAL HEMORRHAGE TREATED BY LIGATION OF THE COMMON CAROTID ARTERY.¹

BY F. X. DERCUM, M.D., AND W. W. KEEN, M.D.

CASE I.—Dr. Dercum was called in consultation with Dr. T. Stanton Crowley to see J. W., *et.* 50 years, on Wednesday evening, February 14th. Dr. Crowley furnished the following history :

Mr. W. about eight o'clock in the morning of the previous Sunday (February 11th) had experienced a slight weakness of the left arm. He paid no attention to this until evening, when he noticed also a slight weakness of the left leg. The patient became alarmed. Dr. Crowley being summoned, promptly and thoroughly applied wet cups to the back of the neck, administered a vigorous purgative and, later on, bromides with ergot. Notwithstanding this decided treatment the patient's hemiplegia had grown slightly more marked by Monday morning. The condition persisted with but slight change throughout Monday, but on Tuesday another decided increase in the amount of palsy was noted. From this time on the condition grew gradually and readily more marked until Wednesday evening, February 14th. At this time there was complete motor palsy of the left arm and very decided palsy of the left leg and also paralysis of the lower half of the left face. In addition the pupil upon the right side seemed a trifle larger than that upon the left. This last fact, however, the patient maintained was usual with him and that it had always existed. There was no paralysis of sensation. Patient had a dull feeling in head, but no decided headache. Slight giddiness was also present. There was no mental disturbance whatever, the man being perfectly clear and rational. There was at no time any somnolence or stupor. An examination of the heart resulted negatively though the blood vessels at the wrist and temples appeared slightly atheromatous. The urine revealed specific gravity of 1.018 together with a minute quantity of albumen; otherwise negative. The possibility of embol-

¹Read before the American Neurological Society, Washington, D. C. May 30, 1894.

ism, thrombosis or ingravescient hemorrhage was now considered with the probabilities distinctly in favor of ingravescient hemorrhage. Owing to the progressive character of the symptoms interference of some kind seemed urgently indicated. It will be remembered that Mr. Horsley, in his experiment upon the brains of monkeys, noted that he could readily control hemorrhage from the basal ganglia and capsules by ligation of the common carotid artery, and in consequence of this he suggested ligation of this vessel as the treatment for cerebral hemorrhage in man. Ligation of the common carotid upon the right side was proposed to the patient, who at once gave his consent.

Prof. W. W. Keen was then called in and at eleven P.M. ligated the right common carotid. Inasmuch as we feared that an attempt to secure anæsthesia by the administration of ether might be accompanied by a sudden increase in the hemorrhage cocaine was used locally. The patient bore the operation remarkably well and passed a comparatively comfortable night. On February 15th, the next day, he was again examined at eleven A.M., Drs. Dercum, Keen and Crowley being present. The course of the paralysis, which before ligation had been steadily progressive, had evidently been arrested. Little or no change beyond this had taken place in the patient's condition, save a doubtful and slight return of power in the muscles of the left shoulder and upper arm and an equally doubtful improvement in the movements of the left leg. February 16th, 10.30 A.M., a very appreciable improvement in the condition of the arm was noted, the patient being able to slightly move the fingers. Decided improvement was now also noted in the movements of the leg, the latter being more readily abducted, flexed and extended.

On February 19th, 10.30 A.M., it was noted that the improvement before observed was continued, movements of the hand and fingers, upon arm and shoulders in all directions being much improved. Extension and flexion of the fingers more marked than before. This is also true of the movements of the hand at the wrist, forearm also more readily flexed and extended and muscles of shoulder and upper arm move comparatively freely. Patient now passed from observation until April 23, 1894. There was now present very slight dragging of the left leg, the latter was distinctly though very slightly spastic, tendon jerks of arm and leg on left side plus as compared with the right. Slight droop

of the left angle of the mouth. The patient has, however, good control of the muscles of the lower half of the left face. Dynamometer registered by the right hand sixty, by the left hand thirty. No anæsthesia. Pupils slightly unequal, the right being a little larger than the left. Both reacted normally. Mentally, the patient was clear, bright and cheerful. The above case is an exceedingly instructive one. It is, of course, impossible in a given instance to make more than a probable diagnosis. However, the course and progress of the paralysis together with the absence of grave mental symptoms, such as somnolence, stupor, coma, distinctly pointed to a progressive capsular hemorrhage rather than to a gross and extensive cortical suffering. Further, in the distribution of the paralysis also the clinical picture resembled more closely hemorrhage than embolism or thrombosis. Being fully alive to the difficulties of an absolute diagnosis and yet feeling that the probabilities pointed strongly to ingravescent hemorrhage, we decided not only that the operation, not adding in any event to the danger, was in reality urgently indicated. If we were correct, as I firmly believe we were, Mr. Horsley's expedient enabled us to save at least one human life, cases of ingravescent hemorrhage being notoriously fatal.

CASE II.—Mr. B., middle aged man, was attacked by weakness of the left arm about two o'clock in the afternoon of June 6, 1893. The weakness became gradually more and more marked and by evening had involved the leg and to some extent the face. Late in the day he was seen by his family physician, Dr. Crowley, who summoned Drs. Keen and Dercum in consultation. Cerebral hemorrhage, ingravescent in character, was diagnosed and preparations were at once made ligaturing the right common carotid. The paralysis had gradually deepened so as to be almost complete, and unconsciousness also had supervened before the operation could be performed. However, it was successfully carried out about ten o'clock in the evening. Owing to the patient's condition no anæsthetic was administered. He failed, however, to rally, no change in his condition was noted and he survived but a few hours.

It cannot be said that the expedient of ligaturing the carotid had in this case been given a fair trial. The hemorrhage, though beginning slowly, had with each hour become more extensive; that is, judging from the symptoms, and the operation was obviously performed too late to do any good.

THE NON-OPERATIVE TREATMENT OF MET-ATARSALGIA.¹

By V. P. GIBNEY, A.M., M.D.

New York.

A VERY good description of the neuralgia which is now termed "metatarsalgia" is given in a paper by Dr. Charles E. Woodruff, Assistant Surgeon, United States Army, in the *Medical Record*, January 18, 1890. The title of his paper is "Incomplete Luxations of the Metatarso-Phalangeal Articulations." The term "Morton's toe," has been in use for many years, because of Dr. Thomas G. Morton's paper, which was presented in 1876, in the *American Journal of the Medical Sciences*, under the title "A Peculiar Painful Affection of the Fourth Metatarso-Phalangeal Articulation." Dr. Thomas S. K. Morton in 1893 published a paper in the "Transactions of the Philadelphia Academy of Surgery," which gave the literature from the date of the first paper of Dr. Thomas G. Morton in 1876.

In this first paper above mentioned, the mechanism of the pressure is given in detail, and I cannot do better than quote as follows: "The occurrence of neuralgia may be understood by a reference to the anatomy of the parts. The metatarso-phalangeal joints of the first, second and third toes are found in almost a direct line with each other, while the head of the fourth metatarsal is from one-eighth to one-quarter of an inch behind the head of the third, and the head of the fifth is from three-eighths to half an inch behind the head of the fourth. The joint of the third of these is slightly in advance of the joint of the fourth, and the joint of the fifth is considerably behind the joint of the fourth.

¹ Read before the American Neurological Association in Washington, D.C., June, 1894.

"The fifth metatarsal joint is so much posterior to the fourth that the base of the first phalanx of the little toe is brought on a line with the head and neck of the fourth metatarsal, the head of the fifth metatarsal being opposed to the neck of the fourth.

"On account of the character of the peculiar tarsal articulation, there is very slight lateral motion in the first three metatarsal bones. The fourth has greater mobility, the fifth still more than the fourth, and in this respect it resembles the fifth metacarpal. Lateral pressure brings the head of the fifth metatarsal and the phalanx of the little toe into direct contact with the head and neck of the fourth metatarsal, and to some extent the extremity of the fifth metatarsal rolls above and under the fourth metatarsal.

"The mechanism of the affection now becomes apparent when we consider the nerve supply of the parts. The branches of the external plantar nerve are fully distributed to the little toe and to the outer side of the fourth; there are also numerous branches of this nerve deeply lodged in between these toes, and they are liable not only to be unduly pressed, but pinched by a sudden twist of the anterior part of the foot. Any foot movement which may suddenly displace the toes when confined in a shoe may induce an attack of this neuralgia. In some cases, no abnormal or other specific cause for the disease has been detected."

It was reserved for Dr. Auguste Pollosson, of Lyons, to give us the name "metatarsalgia" in 1889. He looked upon a certain laxity of the transverse metatarsal ligament as a cause, and naturally directed his attention to the correction of the flat foot which results from this laxity of the ligament. Mr. Edmund Roughton, in the *Lancet* for March, 1889, takes the same view, and reports a case which he relieved by having the patient raise himself on the toes and ball of the foot, or even on tip-toe, in order that the tendons and muscles of the sole of the foot may be strengthened. The literature, however, as shown by Dr. C. L. Dana, in the *Medical Record* for

July, 1885, antedates the paper of Morton. For instance, Velpeau, in France, described cases in 1883; S. Weir Mitchell, of Philadelphia, in 1872.

Referring again to the mechanism, Dr. Woodruff makes this statement: "The first phalanx of the second, third and fourth toe, having no muscular attachments, except the feeble interosei, has no aid from muscular contraction to help keep it in position. I do not know why the middle toe should be the one nearly always affected, unless it is due to the fact that when the weight of the body is placed on the toes dorsally extended, the third metatarsal being the key of the arch, is brought near the floor and causes the corresponding toe to be more forcibly flexed and receive more of the weight than the others. A slight flattening or hollowing out of the end of the metatarsal would materially aid in preventing the return of the phalanx. Habit, undoubtedly, is a great factor in perpetuating the trouble, and after a few weeks dislocation is produced by the very trifling motions of the toes."

The treatment suggested and carried out by Thomas G. Morton is perfectly rational, namely: excision of the fourth metatarso-phalangeal articulation, and this surgeon has reported a number of interesting cases where relief has been permanent. Nearly all of the authors including Morton, himself, who have presented histories of cases, refer to the constriction of the sole and instep as a means of temporary relief. Such expressions as the following are common in speaking of pain: "was sometimes so severe as to cause him to remove his boot and grasp the sole of his foot in his hand;" "grasping the foot in the hand and pressing it between the hands on sole and dorsum will ease the pain;" "grasping the foot tightly around the metatarsal region will answer;" "I have sometimes worn a circlet of India rubber band binding the foot around the instep."

Dr. E. H. Bradford, of Boston, has reported a number of cases, and in a paper, "Metatarsal Neuralgia, or Morton's Affection of the Foot," in the *Boston Medical*

and Surgical Journal, 1891, Volume II, page 52, he states that in none of his thirteen cases was any degree of flat foot present. The rheumatic or gouty diathesis, I am convinced, plays an important part in the etiology of this affection, yet few of the writers seem to regard this as a very significant factor.

From a very careful study of the cases reported, and from a careful study of my own cases in private practice, as well as from the association of metatarsalgia with certain cases of flat foot, I have become convinced that we must recognize three factors, sometimes operating together, but more frequently not associated. These three factors are (1) the twist above referred to; (2) a moderate grade of flat foot; (3) the rheumatic or gouty diathesis.

For several years it has been my custom in examining these feet, to grasp the sole and instep with my hand and make firm pressure, in order to determine, if I could, the measure of relief afforded. In this way, I have become familiar with the relief the patients get by resorting to this same procedure. If one, for instance, grasp the metacarpal bones near the proximal ends, it will be found that the distal ends are separated, as any of you can demonstrate.

The shoemaker, Mr. J. Henry Block, who has built orthopedic shoes for me, finally suggested a Spanish last, which raises the arch of the foot and makes considerable pressure in this region, as a good last on which to build a boot for the relief of metatarsalgia. We found by a little experimenting that a boot built on such a last and laced snugly across the instep and left rather free across the ball of the foot, with a modified French heel, that is, a combination of a French heel and an English heel, would nearly always give relief. I found that patients who wore boots thus constructed were not compelled, as they frequently had been, to remove them in the theatre, or in a warm building, and go through the usual means of relief so common to these sufferers. I have here a Spanish last, which is nothing more than a

last with high instep, for your inspection. The heel referred to is a heel which is rather long and throws the weight of the body well upon this portion of the boot. It must be rather high in order to accommodate the foot to the high arch caused by the Spanish last. It is difficult to get a shoemaker to build a boot of this kind, especially where there is a complication of flat foot. I have employed for a number of years an artist of this kind, who will modify or change a boot to suit the indications which to me seem necessary, and I am at liberty to discard a pair of boots if they meet my disapproval. One can't get this sort of service in the ordinary shoe establishment, for the reason that the foreman is usually so much impressed with his own importance, that the real owners are afraid of offending him. So that when one dislikes a boot and orders it changed, it requires a great amount of patience to put up with the suggestions of the foreman in question, and when it does come in to suit you, there are a number of extra charges tacked on, which are apt to disgust the patient with the whole proceeding, and hence the difficulty of securing the kind of relief which I have suggested in this paper. I have found this procedure a very practical one, namely, to have my own shoemaker make one pair, then let the patient take this to the one with whom he deals, and very often a satisfactory boot is constructed.

A few cases may be of interest.

CASE I.—A lady, aged 22, came to me for relief November 28th, 1889. She had suffered for several years with pain about the junction of the third with the fourth toe. The pain would sometimes extend up the dorsum of the foot, but more especially along the palmar aspect as far back as the mid-tarsal joint. It came in paroxysms lasting sometimes for an hour or two. She knew of no cause. If the metatarsal bones were crowded together at their distal ends, the pain was induced. A shoe was ordered for her made as above described, and she soon got relief. I have had no opportunity of getting a personal report from this patient, but the shoemaker tells

me that he has been making shoes for her since that date, and that she has expressed to him perfect relief so long as the boots were in good order. A few of her friends who have been similarly affected have consulted her shoemaker at her suggestion.

CASE II.—A gentleman, 48 years of age, fond of an out-of-door life and quite a sportsman, was referred to me by Dr. Pierrepont, of New York, on the 8th of May, 1890. He had complained occasionally of a burning pain under the sole of his foot, and over a small area about the end of the fourth metatarsal bone. His symptoms were aggravated by walking, and occasionally after he had been sitting a long while. The paroxysm at times became so great that he was compelled to loosen his shoe and take it off frequently during an evening. Even after the shoe was removed the pain would continue for a little while. He wore, at the time of his first visit, a pair of laced boots which were drawn quite snugly over the instep, and when these were tightly laced, he said he got relief. There was no flat foot in the case. His family was gouty, but he himself had never been subjected to many gouty symptoms. He was treated in the same way, and reported to me two or three times after the first visit as entirely relieved by the boot. He continues to wear the same boot, and only recently have I heard from him through the shoemaker.

CASE. III.—A lady about 30 years of age was referred to me by Dr. Doubleday on the 13th of March, 1890. The diagnosis made was metatarsalgia, right foot. Twelve years before she first experienced pain in the ball of the foot, without any special cause, lasting then until she would remove her shoe, sometimes half a day.

After a season these pains would pass away, and she would not suffer for six or eight months. The intervals of relief, however, got shorter, and at the end of about five years she began to have these paroxysms much more frequently. For a year prior to my first observation she had suffered almost continuously during the daytime. She reported that new shoes were much more comfortable than old ones. A large pair of shoes which she wore the summer preceding aggravated her pains. She responded to the usual tests. The Spanish last boot was prescribed. I saw that she had a good fit, and on the second of March, 1894, I learned that she had very little pain, in fact, none, so long as she wore the prescribed boot.

CASE IV.—A lady, 30 years of age, was referred, April 11th, 1890, by Dr. Carmen, of Harlem. She had suffered for several months with pains in the outer side of the left foot, extending up the calf, and even as far as the thigh at times. She was compelled to go through with the usual movements of relief, such as loosening the boot and grasping the body of her foot with the hand. I prescribed for her the same line of treatment, but I learned during the end of the year that she had not experienced the relief that she expected, and on investigating it, I found that she had tried to get her shoes made elsewhere on account of some trouble between herself and the shoemaker, but on the 16th of February, 1891, she told me that she was quite positive that the first pair of shoes made were satisfactory in every way, that she was relieved entirely of pain in her foot, and that she had not been able to get anything quite so satisfactory. I learned later from the shoemaker that she wanted a handsomer fit about the toes, objected somewhat to the style of boot, that she tried elsewhere, and finally returned to her first love, and in March, 1894, she was still relieved.

CASE V.—A gentleman, about 40 years of age, was referred by Dr. Barrows. He led a very active life, was quite a high liver, suffered from gout and rheumatism, was an inveterate smoker. The pain he described came on irregularly, and in the most inconvenient places, for instance, at the theatre, or at the dinner table, the starting point being at the distal end of the fourth metatarsal and extending back to the tarsus, seldom, if ever, up to knee. He always got relief by removing the boot. Walking did not produce the disturbance. He had a feeling as if one bone were riding by the other. Pressure of the distal ends with one's hand produced a paroxysm, and direct pressure over the distal end of the bone with one's finger would produce pain. There was no flat foot in this case. The relief from the boot ordered was not prompt, and the Paquelin cautery was applied over the point of tenderness. About a month after the first observation all the members of the family testified to the relief that he had finally experienced, and on this occasion he wore a pair of dress shoes for the first time in months with comfort. It was exceedingly difficult to regulate his diet or to exert any discipline in the way of living, so he passed from my observation, and I am unable to give a final report.

CASE VI.—A lady, 35 years of age, was referred by Dr. Frank Kinnicutt on the 8th of December, 1891. She had suffered for nearly a year, and had been treated by a traction brace, the object of which was to extend the tendo-Achillis daily. I was not informed as to how often the stretching process was resorted to, but she reported that she spent a whole winter under this treatment. The pain was at first on the inner side of the foot, but it shifted to the outer side and was much more severe in character. Dr. Kinnicutt himself had looked upon the case as gouty, and had prescribed without material relief. A paroxysm was about as follows: The pain began near the distal end, under surface, of the fourth metatarsal, right side, coming on without special provocation, extending over the outer side of the foot, back of the malleolus, up the calf, and the painful sensation increasing for a time, so that she felt as if her foot were in a vise. She was compelled to take off her shoe quickly, and after a little while would get relief. She responded to the usual tests. The arch was well-formed, and she volunteered the testimony that when she wore shoes with French heels she suffered less. My last report was on the 11th of February, 1892, when I learned that her own shoemaker had succeeded in building her satisfactory boots. She regarded herself as practically cured, although an occasional pain would come on, but it was very light and of brief duration.

I could relate a number of similar cases, but the details are so much like those already recorded that they will add nothing to the value of the paper. Personally, I have had very little opportunity of treating the gouty or rheumatic manifestations, inasmuch as the patients came to me from the family physician, and where any such diathesis existed it was he who gave it attention. There are certain neuræsthenics who suffer in this way and almost any treatment fails to relieve permanently, but I have notes of a few of this class where relief has eventually come, and I am convinced that strict attention to details, such as the proper construction of the boot, and prompt repair when it begins to break down, will assuredly accomplish more than any other form of non-operative treatment with which I am familiar.

Asylum Notes.

DIFFICULTIES WHICH PREVENT THE REALIZATION OF DR. MITCHELL'S IDEAL HOSPITAL FOR THE INSANE.

BY LIVINGSTON S. HINCKLEY,

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In an address before the fifteenth annual meeting of the American Medico-psychological Association, held in Philadelphia, May 16, 1894, Dr. Weir Mitchell sounded an alarm which should rouse alienists and asylum superintendents throughout the country, force them to assume an attitude of defense, if they have any to make, or compel them to acknowledge the justice of a terrible condemnation.

When Dr. Mitchell, whose statements are strongly supported by such eminent American authorities as Billings, Dana, Draper, Folsom, Gray, Hamilton, Loomis, Hammond, Lyman, Star, Osler, Wood, Zenner and Spitzka, boldly reproaches individually and collectively all of our medical superintendents for their sins of omission and of commission, and declares them unworthy of the dignity and honor of a title whose escutcheon they have sullied; when he denounces in scathing terms the whole vast system of asylum management for which they are responsible, and intimates that they have lapsed into a state of professional apathy; when he publishes to the world that they have not only failed to keep abreast with the great strides made in all other branches of medical science, but that in many instances incompetency, indifference, personal greed and the "sclerosis of customs have rendered asylums no better than huge boarding houses" bunglingly kept by pompous individuals who bear the "absurd title of medical superintendents," it is high time for these gentlemen to rise either "to a point of order" or to explain.

In this short paper an elaborate review of Dr. Mitchell's long and able address is obviously impossible. At the risk of being misunderstood on account of the

brevity and fragmentary nature of these cursory remarks, the writer desires to point out certain facts and conditions incident to the present system of asylum keeping which seem to have escaped Dr. Mitchell's critical eye, and to examine, briefly of course, his proposed system of therapeutics for the insane.

The experience of several years in asylum work and frequent attrition with superintendents of both State and county asylums, when grievances have been freely discussed and troubles incident to administration laid bare, have developed the opinion that the present system of asylum management is a monstrous fallacy—a fact that no candid mind informed upon this subject can gainsay.

Far be it from the intention of this pen to convey the idea that advantage has been taken of the time, place, and opportunity to parade a personal skeleton from its closet; but ignoring local conditions in consideration of the introspection of universal shortcomings, attributed, and, in fact, easily traced to the sole obstruction to rapid and progressive evolution.

Indeed, it would presage the assumption of an exceedingly lack of gratitude to attack through this paper the present board of managers of the institution from which this paper emanates, from the fact that the liberal and progressive views of that body have marked a pronounced step in the advance of the evolution we strive for, but which is yet conspicuous by its incompleteness. Appointed and sustained in office by a board of politicians as he is, the superintendent finds himself embarrassed and handicapped by the same political policies of those who tolerate him at all, and instead of devoting his whole time and energies to the upbuilding of a really scientific institution he discovers that he frequently has his hands full to appease the demands, humor the whims and satisfy the wishes of each member of an autocratic board. It is not astonishing that such officious intermeddling is often a most exasperating source of annoyance to the medical superintendent.

It is inconceivable that a member of a board of general managers could be so inconsiderate and arbitrary as to force the superintendent of an asylum to allow a patient to be seen by friends when such a procedure is considered therapeutically contra-indicated and detrimental to the interest and welfare of the patient so disturbed. Yet such pernicious interposition is a recorded fact. If the bedside of patients does not escape the

grasp of political interference, what indescribable havoc must often be created in those departments less intimately connected with the medical work!

Attendants or other employees suspended or discharged by the superintendent for wilful breach of discipline, defiance of the authority of superior officers, or culpable neglect of duty, have in several instances been promptly reinstated by boards of managers for political reasons only. Trained and competent nurses have been hounded out of their positions to make room for those who have a "pull." The entire corps of employes, from steward to cook, is changed to suit the political complexion of the reigning board. Positions of grave responsibility are filled by employees whose stupidity, illiteracy, and total lack of adaptability, are painfully apparent. The expenditure of a few dollars to meet the bare exigencies of minor surgery and lesser gynæcology is grudgingly allowed, while the mere consideration of the propriety of purchasing elaborate modern apparatus for mechano-, electro- and hydro-therapy, although strongly recommended by medical superintendents, is flatly refused. The gross misconception of the true principles of economy, and the fatal method of forcing down legitimate expenses in order to show an actual saving of dollars and cents which is too often the policy adopted by the managers of our institutions of charity throughout the land, are fraught with the most baneful consequences. It is not the absolute amount expended that shows the wisdom or incompetency of a financial board; it is how that amount is used, whether to pay high wages to useless employes, or to promote the comfort and improve the treatment of the unfortunate inmates.

Even the training schools for nurses which a limited number of asylum superintendents have worked so faithfully to establish, do not always escape the jealous slur of selfishness. Some boards have fought the schools openly, others have stabbed them in secret, and a few have encouraged the enterprise either officially or personally in a quiet way.

So much for the part played by these political influences in one of America's greatest systems of charities. No, Dr. Mitchell, it is not "all mere scandalous gossip." It is "ward politics at the bedside of the lunatic!" But it is one thing to see that a line is crooked, and quite another to be able to draw a straight one.

In view of the demoralizing consequences which the

interference of frequently changing partisan boards of managers entail, consequences fraught with perplexing difficulties that almost daily confront the superintendents of a vast majority of public asylums in America, and recognizing how futile have been their efforts to emancipate their work from the manacles of political power, it is clear to the mind of an impartial observer that in his sharp criticism and wholesale condemnation of medical superintendents, Dr. Mitchell has been unjustly severe.

It is true that our alien literature and asylum reports are too painfully barren of original research in the pathology and therapeutics of insanity. But are medical superintendents solely responsible for this scientific unproductiveness? Do your medical colleges do their whole duty in training young men in the fundamental principles of psychology and neuro-pathology? Do they emphasize the importance of this branch of study with such force and energy in lectures, clinics and quizzes as they do general medicine, surgery, gynæcology and neurology? In most all of our colleges little or no attention is given to the subject of insanity. To the chair of "nervous diseases" is incidentally appended a few cursory lectures on insanity. These lectures are almost invariably delivered in empty halls to vacant seats; for the lecturer manifests so little interest and enthusiasm in the subject of his discourses that students are impressed with the belief that such lectures are only thrown in to fill up space and are wholly irrelevant. In the final college examination, questions on mental diseases are exceedingly rare. No great pathologists are devoting their sole time to the microscopic study of the morbid conditions of nerve structure in its relation to insanity.

Indeed, insanity is a vast unexplored continent, a faint knowledge of whose shores suggest untold wealth of scientific information ready to reward those who patiently and courageously penetrate its mysterious interior; for, to use the words of a great writer, "in the brain, that wondrous world with one inhabitant, there are recesses dim and dark, treacherous sands and dangerous shores, where seeming sirens tempt and fade, streams that rise in unknown lands from hidden springs, strange seas with ebb and flow of tides, restless billows urged by storms of flame; profound and awful depths hidden by mist of dreams, obscure and phantom realms where

vague and fearful things are half revealed; jungles where passions' tigers crouch, and skies of cloud and blue where fancies fly with painted wings to dazzle and mislead; and the lone wanderer in this pictured world, enwrapped by the emotions of an exuberant soul, wends his way across green fields and blooming meadows, beside cooling springs, sparkling cascades and shady groves, or he is led by old desires, and ancient hates, and stained by crimes of many vanished years, and pushed by hands that long ago were dust, until he becomes a bewildered slave that mockery has throned and crowned"—the delight of insanity, the pain of madness.

In this limitless and fascinating field of scientific research many ambitious and able young men could be easily induced to make a life study, if colleges would rouse them to a sense of its importance and asylum authorities would encourage and stimulate them by paying better salaries and fitting up laboratories for such work.

The assistant physicians do the most of the special and individual professional work in asylums, and, receiving as they do mere pittance of salaries, it is impossible to secure the services of the most talented and best equipped young physicians.

Dr. Mitchell bewails the "amazing lack of complete physical study of the insane, the oddly defective schedule guide to symptom notes, the failure to see obvious lesions, the want of thorough day by day study of the secretions in the newer cases, of blood-counts, temperatures, reflexes, eye-ground, color fields," and to cap the climax of his indignation, he accuses asylum superintendents of fostering the superstition and "wide-spread belief that there is some mysterious therapeutic influence to be found behind the grim walls and locked doors of asylums for the insane."

These grave charges cannot be ignored. Such an unqualified arraignment, frowning down with such unwonted severity upon this great body of American alienists, is extremely unjust, and, if not refuted or explained, fraught with most disastrous consequences to the public confidence imposed in these gentlemen. His high professional repute, his unimpeachable integrity and the earnest fervor of his noble life work, bear overwhelming testimony to Dr. Mitchell's sincerity of motive and honesty of purpose. But to the thoughtful student of

insanity, who has had sufficient practical experience in its treatment in any of our large public asylums to enable him to separate the useful and practicable remedies at our disposal from the great mass of therapeutic fiction with which Utopian dreamers have burdened our literature, Dr. Mitchell's ideal hospital for the insane, his romantic therapeutics and his corps of trained nurses, whose psychic influence enables them to sway the feelings and control the impulses of maniacs as easily as did the legendary saints of old, savors of the highly-colored visions of a traveller in Altruria, rather than of the careful, accurate suggestions of a scientist whose judgment had been moulded by the experience of many years. Most assuredly the minute details of thorough physical examinations of all cases of insanity would not only be of vast interest to scientists, but would serve as invaluable guides to rational treatment. The profession will owe a lasting debt of gratitude to the clinician who will present a method for successfully testing the eye-ground and color-field of patients who, by reason of their mental condition, are unable to distinguish between a man and an ox. In a large majority of insane patients a satisfactory ophthalmoscopic examination is absolutely impossible. In his efforts to take the temperature of violent patients, the physician of great tact and ingenuity often fails completely. The stethoscope is useless in many cases, unless narcosis or anæsthesia be produced, which procedure necessarily alters the character of, and ratio between, respiration and circulation.

That mechanical restraint which merely checks the outward muscular movements while motor energy is all the while being generated in the brain convolutions, is eminently unphysiological, cannot be questioned. Would it be wiser to allow this morbid storm of motor energy to seek the path of least resistance by permitting the patient to walk, and run, and dig, and push a wheelbarrow until his muscles become tired out? Would not such a mode of procedure entail an additional complication, namely, physical exhaustion, depression of all the vital functions of the body, impaired digestion and rapid tissue starvation?

Would not a violent and destructive maniac upset the serene tranquillity of Dr. Mitchell's ideal asylum by tearing to pieces his flower-beds, shattering his painted vases, breaking his bicycles, and using the croquet balls and mallets to disturb the comfort, molest the peace and

endanger the personal safety of fellow patients? To keep one strong, muscular patient, with destructive tendencies, out of mischief, it would require the constant vigilance of at least one trustworthy attendant and the united strength of several. Occasionally a patient who is not dangerously violent, is persistently denuding, tearing his clothing into shreds, and resorting to petty self-mutilations, such as picking his nose, eyes and ears until they become inflamed and sore. Such patients are often oblivious to all external impressions, every movement being an unconscious reflex act. Would not a light form of mechanical restraint, such as neat canvas muffs applied to the hands so as to prevent the use of the fingers, be preferable to the monopolizing of the entire time of one or more nurses who would be compelled to use manual restraint which would confine the movements of the whole arm instead of the fingers only, and which would be an additional source of irritation to the patient?

In the violent wards of our public asylums, where there are fifteen patients to one attendant, it is clearly evident that some sort of restraint becomes at times absolutely unavoidable. It is a condition and not a theory that confronts a physician of such a ward. The only question involved is whether the restraint shall be of a mechanical or chemical nature. Disturbing as it does the physiological equilibrium of the whole body, checking secretion and excretion, interfering with digestion and arresting both constructive and destructing metabolism. That treatment which requires the continuous use of powerful drugs to stun and narcotize the central nerve centres is not only highly reprehensible practice, but is productive of most disastrous consequences to the patient.

The writer is constrained to believe that the mortality is lower in those institutions where the potential principles of non-restraint are sacrificed for the benefit of the patient. The introduction of a system of treatment which would enable alienists to treat successfully all cases of insanity without resorting to any form of restraint, either chemical or mechanical, would mark an epoch in the history of psychic therapeutics, and would be regarded as the greatest triumph of modern medicine.

In his extravagant notions of an ideal asylum, and in his extraordinary faith in the efficacy of moral suasion

in controlling the insane mind, Dr. Mitchell ignores the fundamental nature of mental aberration. The impulsive thoughts of an insane person which tend to deeds of violence, homicide or suicide, are as truly pathological and beyond the control of the will as are the psychical convulsions which mark the fatal culmination of these morbid ideas. An insane being can no more resist an inclination to destroy flower vases, paintings or statuary because they are beautiful, or keep from striking an attendant because he is conscious that he possesses the latter's friendship, than he can control the movements of chorea because he is in company, or stop the spasms of strychnine poison because he knows the physiological action of the drug.

Of course, there are many forms of insanity as well as many degrees of intensity in any given form, so that by a careful selection of cases suited to his ideal asylum, where restraint is unknown, where the gates stand wide ajar and doors have no locks, where flowers and music and art heal the diseased brain, where nurses trained in the clairvoyance of psychic influence soothe the morbid fears, sweeten the bitter thoughts and subdue the wild delirium of a tortured mind, where the physician's magic "peace be still" calms the tempestuous sea of insane passions and turns the blackness of demented despair into the light of healthful cheer, it is possible for Dr. Mitchell to realize a consummation of his great hope, although he admits that science will not reach such ideal perfection in his day.

In conclusion, it is scarcely necessary for the writer to intimate that the present lack of knowledge touching the anatomical situation and pathological nature of the lesions which induce insanity, preclude the possibility of basing our therapeutics upon a highly scientific rationale; for alienists confess that, so far as the real nature of mental diseases is concerned, they must agree with Sir William Hamilton that "the highest reach of human science is but the scientific recognition of human ignorance." Let us hope that, although the vague theories of speculative philosophy have obscured the horizon of psychology, the marvelous light of experimental science will ere long lift the entire system of caring for the insane to a higher plane of humane and scientific therapy.

In the meantime, let us make haste slowly, for science does not advance by the spasmodic leaps of revolution, but by the sturdy sure march of evolution.

Society Reports.

AMERICAN NEUROLOGICAL ASSOCIATION.

(Continued.)

*Twentieth Annual Meeting held at the Cosmos Club,
Washington, D. C., on May 30 and 31, June 1, 1894.*

Dr. F. X. DERCUM and Dr. W. W. KEEN read a paper on (See page 586.)

TWO CASES OF CEREBRAL HEMORRHAGE TREATED BY LIGATION OF THE COMMON CAROTID, ACCORDING TO THE METHOD PROPOSED BY HORSLEY.

DISCUSSION.

Dr. FRANK R. FRY, of St. Louis, said that Dr. Dercum's two cases exemplified very nicely the kind of a case to operate on, and the kind of a one not to attempt it in. One of them was a proper case for operation, the other was not. But the difficulty was in establishing this fact beforehand. In other words, the diagnosis, first, of hæmorrhage, and secondly, the character of it, were the important points.

Dr. KNAPP said that unfortunately most patients were seen too late for such an operation. Of course, it was to be advised only at the first symptoms of hæmorrhage, and then it might possibly be of advantage.

Dr. F. X. DERCUM said that the operation was especially indicated in cases of ingravescant hæmorrhage. It is true that it is frequently difficult to distinguish an ingravescant hæmorrhage from thrombosis. However, even if the mistake were made of ligating the carotid in a case of thrombosis, it is not probable that the procedure will be productive of harm. He further suggested that it should become a common practice with phys-

icians, in all cases of apoplexy due to cerebral hæmorrhage, to *compress* the carotid, and later on, according to circumstances, perhaps ligate it.

Dr. V. P. GIBNEY read a paper on

NON-OPERATIVE TREATMENT OF META-TARSALGIA. (See page 589.)

DISCUSSION.

Dr. CHARLES K. MILLS, of Philadelphia, said he had been in the habit of recommending a somewhat similar shoe, but some cases could not be relieved by any shoe, owing to the obstinate neuritis established. Operative measures would then have become necessary.

Dr. J. J. PUTNAM, of Boston, considered it of value to make a carefully adjusted opening in an inner sole of thin, hard leather. He had himself worn such a sole for many years, and found it to give great relief provided the size and shape of the opening were carefully studied.

Bronchial Asthma.—Dr. Krause, of Norway (*Wiener Med. Wochenschrift*), reports very good results in the treatment of the nervous type of this disease by recommending a sojourn at the sea coast. Out of fifty-six cases, twenty-nine patients were completely cured. Ten others, in whom emphysema was marked, were so much improved by four or five weeks of the sea air that they were enabled to resume their various occupations. As much time as possible should be passed out of doors. After getting accustomed to the air, the salt sea baths should be taken, at first slightly warm until they can be taken in the sea. The nervous irritation soon passes off, the congestion of the tubes become less and the attacks less frequent until cure is complete. B. M.

Book Reviews.

PHILADELPHIA HOSPITAL REPORTS, Vol. II.

This volume of reports contains forty-three articles embodying some of the work done in the hospitals, almshouses, etc., under the control of the department of charities and correction. There are a number of fine illustrations, including an excellent portrait of the late Dr. David Hayes Agnew, whose contributions to surgery are too well known to necessitate more than simple mention. Among the many contributors may be mentioned, White, Horwit, Parvin, Mills, Dercum, Sinkler, Lloyd, Hughes, De Schweinitz, and many others. Naturally, that portion of the books devoted to nervous affections is of the most interest to the neurologist, and we therefore give below a brief résumé of such of the more important neurological papers which find a place here.

DISORDERS OF PANTOMIME OCCURRING AMONG APHASICS, STUDIED WITH PARTICULAR REFERENCE TO THEIR MEDICO-LEGAL BEARING. BY CHARLES K. MILLS, M.D.

Amimia and paramimia are expressions which bear the same relation to pantomime that aphasia, paraphasia, paralexia, etc., bear to speech. As in aphasia, there are two varieties of pantomimic disturbances, namely, a sensory or receptive, and a motor or emissive amimia. A study of the disturbances of pantomime may aid in the diagnosis and may decidedly affect decision in medico-legal cases.

Nine cases of aphasia or pseudo-aphasia studied with reference to pantomime, gave the following results: In one case of brachio crural monoplegia, almost complete motor aphasia with marked preservation of pantomime were present; in a hemiplegic with word-blindness, verbal amnesia, and motor aphasia, there were marked sensori motor disturbances of pantomime; in a third case, of right hemiplegia and nearly complete motor aphasia, the pantomime was varied and uncertain; a fourth case of right hemiplegia with complete aphasia of the mixed type, showed almost complete amimia; a fifth case of right hemiplegia, with almost total sensori-motor aphasia, exhibited energetic emotional gesticulation. In a sixth case of marked hemiplegia with motor aphasia and anarthria, only a slight degree of loss of pantomime was shown; case seven, which was one of right-sided pseudo-bulbar paralysis with anarthria, exhibited also full preservation of pantomime. Case eight was an example of right-sided pseudo-bulbar paralysis, with anarthria, and full preservation of pantomime. The ninth and last case was one of double hemiplegia with absolute abolition of speech and pantomime.

The study of pantomime may become an important diagnostic aid in fixing subcortical lesions. Some of the cases showed that when the lesion was entirely in the straits between the ganglia, the corona radiata escaping, pantomime was either not lost or soon entirely regained.



FIG. 1.

Aphasia and hemiplegia with unreliable pantomime.

The accompanying illustration is that of a right hemiplegic, with nearly complete aphasia, chiefly of the motor type, and with varying conditions of pantomime. She showed a curious confusion, both of speech and pantomime. She assented by "yes" and dissented by "no," oftener than not correctly; nevertheless her "yes" and "no" could not by any means be relied on. She used sometimes one for the other, and never corrected herself. While apparently answering properly to some easily understood query, in other cases her assent or dissent by speech was foolish or absurd. When asked, for example, if her name was Smith, she answered, "Yes;" Brown? "Yes;" Jones? "Yes," etc. Her pantomime was much affected and of a confusing variety. Now and

then, she evidently nodded "yes" when she meant "no," and this pantomime, like her speech, was never corrected spontaneously. She never used or could be induced to use her unparalyzed hand and arm to enforce anything she said.

A CASE OF HEMIPLEGIA ASSOCIATED WITH ATROPHY OF THE MUSCLES OF THE PARALYZED SIDE, AND ALSO WITH A PARTIAL MOTOR APHASIA, THE PATIENT HAVING A GOOD MEMORY FOR SUBSTANTIVES, BUT AN ABSOLUTE LOSS OF ALL OTHER PARTS OF SPEECH. BY F. X. DERCUM.

R. J. H., male; aged forty; married; Scotch: engineer.

His family history is negative. He has used alcohol moderately and has been infected with syphilis. Eight months prior to his admission to the Philadelphia Hospital, he began to lose power in the right arm and leg. A few days later he had an apoplectic stroke with loss of consciousness. The next day he realized that he had lost absolutely the use of the right arm and leg. He was also completely aphasic. The paralyzed side never regained any power. After several months, he recovered a little of the power of speech, which has slightly improved up to the present time. He also had alexia which persisted for about eight months.

The examination of the patient revealed the following main facts: Marked hemiplegia of the right side, involving also slightly the lower third of right face; contractures; atrophy of the muscles of hand, forearm, arm, and shoulder. Marked tendon reflex excitability; right thigh, 14½ inches; left thigh 15¼ inches; right calf 11 inches, left calf 11½ inches. The atrophy of the limbs is well shown in the annexed figure.

There is no anæsthesia or loss of temperature sense; in the right hand, however, the patient makes constant errors of location; no eye symptoms.

His aphasia presents the following peculiarity: When asked to detail the history of his early life, he simply strings together a number of substantives, such as "school, marbles, farm, errands, engineer, Glasgow, Philadelphia." He is apparently unable to recollect any other part of speech, with the rare exception of the words "was" and "make." Has neither ataxia nor word-deafness. Some degree of alexia. Is able, however, to readily read the substantives. Can write substantives with the left hand but no other parts of speech.

Dercum's explanation for this peculiar form of aphasia is as follows: It is not improbable that in the anterior portion of the third frontal convolution we have situated the memory for nouns. May it not be in this case an embolus occluded all the branches of the middle cerebral artery supplying the motor area, and also the posterior portion of the third frontal convolution, while the anterior portion escaped?



FIG. 5.

Aphasia, hemiplegia, and atrophy of paralyzed side.

A CASE OF SPORADIC CRETINISM. BY F. X. DERCUM.

The case which is illustrated by the accompanying cut, presents the following physical peculiarities: In stature he is decidedly dwarfed,



FIG. 3.
Sporadic cretinism.

being but four feet, five inches in height. The trunk is relatively long, the limbs relatively short. The chest is broad and flat, the abdomen large, relaxed and distended. The forearms and legs are thick.

The distal ends of the bones in both legs are distinctly enlarged. The hands are unusually broad and the fingers thick. The feet are broad and quite flat. His gait presents a side-wise swing and awkward rocking to and fro. The nails are also quite broad and flat.

The head is large, the face broad; the hair is dark brown, dense, and grows low down over the forehead. The eyes are widely separated, the nose is short, the root being depressed while its end is turned up. The cheek bones are prominent, while the jaw is small.

The face is much wrinkled, looks puffy, and is of a dirty yellowish, white color. The ears are large and stand out from the head to an unusual degree.

The neck is thick and wrinkled; no thyroid gland can be felt.

The back presents an excessive lumbar lordosis.

The skin as a whole is of a dirty yellowish hue, and feels harsh, dry, very rough and thick.

There is a small moustache, and the genitalia, as well as the muscles appear well-developed.

Mentally the patient is at the level of a middle-grade idiot.

ARTHROPATHY IN GENERAL PARESIS. BY JAMES HENDRIE LLOYD, M.D.

Lloyd goes into a general review of arthropathies in diseases of the nervous system, outlining the history, occurrence and varieties, frequency, etiology, anatomy and clinical history of these joint affections.

Arthropathies and bone changes have been observed: 1, in cases of arrested development, especially in cerebral atrophy or porencephalon; 2, in the osteomalacia of the insane; 3, in tabes—the true tabetic arthropathy; 4, in scleroderma, leprosy and hemifacial atrophy; 5, in cases of peripheral nerve injury.

The arthropathy of Charcot has been found in four diseases: 1, in locomotor ataxia; 2, in syringomyelia; 3, in sclerose en plaques (one case); 4, in general paresis.

Out of 166 joints studied by Weizsacker with reference to the frequency of arthropathy, eighty-seven occurred on the left side, and seventy-nine on the right. The knee-joint was most often affected (seventy-eight times); the other joints in the order of frequency were, hip, thirty-one; shoulder, twenty-one; tarsus, thirteen; elbow, ten; ankle, nine; wrist, two; maxillary joint, two.

Arthropathies are now commonly held to be trophic lesions. In Charcot and Joffroy's case, atrophy of the anterior horn, and disappearance of many cells were observed, but other cases (Talamon) showed no such changes.

As regards the anatomy of arthropathy, Marie recognizes two classes. First, the atrophic type; second, the hypertrophic type. The former involves more or less complete destruction of the cartilages and bones. The latter is accompanied by bony swellings and stalactites. In both, the



FIG 4.

General paresis with arthropathies.

capsule is commonly relaxed and dilated, and contains a transparent, serous effusion. The two varieties may be present in the same subject.

The onset of an arthropathy is often sudden. The joint becomes

swollen, and in a few days the whole limb is involved. The swelling is hard and brawny, and does not pit easily. By this time effusion has appeared, which persists after the general swelling disappears. Soon, grating sounds are perceived. The dropsy disappears, leaving the joint extremely mobile, but its utility is not always lost. As a rule, there is neither pain, heat, nor redness.

Lloyd then gives the history of a case of typical paresis with arthropathies, well illustrated in Fig. 4.

Both knee-joints were enlarged enormously. Grating sounds could be heard in them easily. The anterior ends of the condyles were enlarged forming prominent bosses.

In spite of the deformity of the knees, the patient managed to walk about. The patellæ were flattened and thickened and increased in diameter. No stalactites could be determined. The joints were painless, and free from heat or redness. There was increase of fluid within them. No marked œdema was seen around the joints, but still the skin had a hard, brawny feeling. There was increased lateral movement.

The patient died of infectious cystitis and pyelitis.

The following are the main changes observed at the autopsy :

Brain.—Dura thickened and adherent to both the skull and the membranes. Subarachnoid œdema. Frontal lobes blanched and shrunken. Pia over the frontal lobes adherent. Extensive adhesion over the base

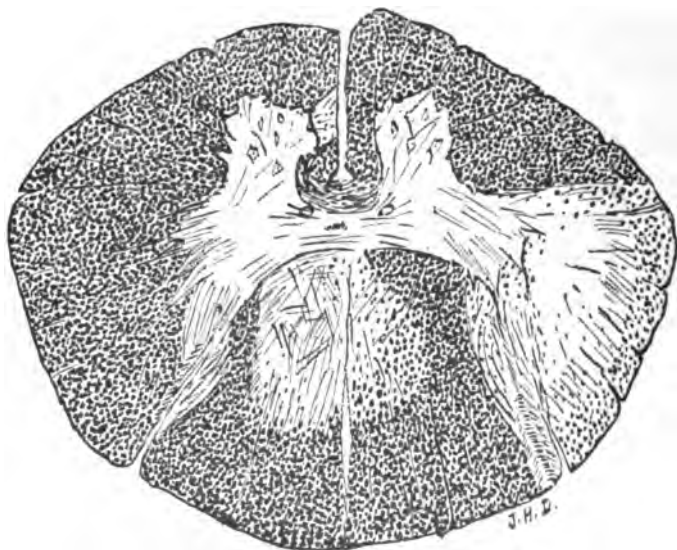


FIG. 5.

Spinal cord (dorsal region) from a case of general paresis with arthropathies.

of the brain. Lateral ventricle dilated and full of a clear fluid to excess. Walls of the third ventricle agglutinated.

Cord.—The cord presents two system lesions. First, partial posterior sclerosis, and second, sclerosis of the crossed pyramidal tract on the right side and part of the direct pyramidal tract on the left side. (See Fig. 5.)

The posterior sclerosis is not distributed symmetrically as in locomotor ataxia. The posterior parts of the columns of Goll and of Burdach are normal. The posterior root-zones practically escape.

As the figure shows, the sclerosed area in the right lateral column is more extensive than the crossed pyramidal tract. At its periphery, a line of less degenerated fibres marks the position of the direct cerebellar tract. The area of degeneration on the right side is not co-extensive with the direct pyramidal tract.

The cells in the anterior horns present nothing characteristic. It is to be regretted that microscopic examinations of the anterior horns in the lumbar region were not made.

Although this cord presented the type seen in cerebro-spinal sclerosis, yet clinically the case was one of general paresis, quite well marked by delusions, progressive dementia, maniacal episodes, and speech and eye defects.

A STUDY OF NINETEEN CASES OF LOCOMOTOR ATAXIA.

BY JOHN MILTON ROBINSON.

Of these nineteen cases fourteen were males and five were females, an unusually large percentage. A history of syphilis was given by three cases, of spinal injury by four; of exposure to cold and wet by seven cases; of alcoholic excesses by seven; of venereal excesses by two.

The symptoms tabulated in the order of frequency are as follows:

1. Knee-jerk absent	18
2. Various paræsthesial, as numbness, formication, etc	18
3. Partial iridoplegia (including twenty-three)	18
4. Girdle sensation around the abdomen	18
5. Urine alkaline and turbid (eighteen cases)	16
6. Anæsthesia	16
7. Severe paroxysms of pain	15
8. Argyll-Robertson pupil	15
9. Acceleration of pulse (above eighty-five)	14
10. Constipation	13
11. Partial incontinence of urine	12
12. Diminished faradic excitability	11
13. Diminished galvanic excitability	11
14. Sudden vertigo	8
15. Myosis	8
16. Sexual involvement	7
17. Transient diplopia	6
18. Urine containing trace of albumen	6
19. Static ataxia	5
20. Limitation of color field	5

21. Exaggerated superficial reflexes.	4
22. Much ataxia in the hands.	4
23. Girdle sensation around leg	4
24. Unequal pupils	4
25. Slight atrophic changes in the optic nerve	4
26. Contraction of the field of vision.	4
27. Gastric crisis	3
28. Transient ptosis.	3
29. Deafness	3
30. Uneven contour of pupil	2
31. Nystagmus	2
32. Irregularity of the pulse	2
33. Tabetic arthropathies	2
34. Tenderness along the spine.	2
35. Qualitative alteration in electrical reaction.	1
36. Girdle sensation around the shoulders	1
37. Laryngeal crisis.	1
38. Partial achromatopsia.	1
39. Anosmia	1
40. Complete incontinence of urine	1
41. Acute retention (occurring at intervals)	1
42. Valvular murmur (mitral).	1
43. Unilateral (?) hyperidrosis.	1
44. Perforating ulcer of foot	1
45. Knee-jerk present, but much diminished.	1

The physicians connected with the public hospitals of Philadelphia, as well as the Commissioners of Charities and Correction, are to be congratulated for issuing this excellent volume of reports, which is the second of a series that is destined to supply many valuable data to medical science. The influence of such works is far reaching, affecting both the medical profession and the lay-community. The issuance of such reports, necessarily involves the assistance of the house physicians who are in consequence stimulated to accurate observation to a degree not otherwise obtainable. The attending physicians to the New York hospitals under the control of the Commissioners of Charities and Correction, should lose no time in following in the foot-steps of their Philadelphia confrères, by petitioning the commissioners to co-operate with them in the publication of an annual report. The material cost of the book would be a mere bagatelle. The material in the New York hospitals is enormous and valuable from the scientific standpoint, yet a great deal of it is lost owing to apathy and indifference manifested by the house physicians, and not a few of the visiting physicians. The prospect of an annual report would tend to dissipate much of this apathy, which is exhibited in defective observation and the careless taking of clinical histories. Indeed, in some of the hospitals, the recording of clinical histories is simply a farce, and a waste of paper. This should not be.

The valuable contributions to medicine by the St. Guy and the St. Bartholomew hospital reports are unknown to but few. New York ought not be behind other cities in contributing her quota to the science of medicine in the shape of an annual volume of reports. P. M.

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OCTOBER, 1894.

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No 10.

THE
Journal
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Original Articles.

AN EXAMPLE OF PSYCHIC ATAVISM.

By JAS. WEIR, JR., M.D.,

Owensboro, Ky.

AMONG the examples of psychic atavism, the most notable one is that which makes itself evident in the relation that exists between religious emotion and sexual desire. Religious emotion and sexual desire are so clearly allied, that the cultivated ethical emotion—religion, frequently takes the place of the natural desire—*libido*, with perfect success. *Per contra* excessive religious zeal quite frequently becomes changed in character, loses its ethical purity and becomes sexual desire. It cannot be denied that man becomes religiously enthused most frequently, either early in life, when *vita sexualis* is about to be established, or, late in life, when *libido* has become extinct. We know how impressionable young boys and girls are at puberty, and how easily they become religious enthusiasts. A census of all the religious converts of the year 1894, would show nine-tenths of the whole number to be made up of young unmarried people and those who have passed the meridian of life.¹ In this age of civilization, youth, hedged about,

¹ "Men and women seldom or never enter into the kingdom of God after they have arrived at maturity. Out of a thousand converts, seven hundred are converted before they are twenty years old." B. Fay Mills in a "Sermon to Young Men and Young Women," at Owensboro, Ky., May 20, 1894.

as it is, by certain moral restrictions; ignorant of the differences in the sexes and filled with indefinite longings and desires, eagerly seizes upon religion to satisfy its yearnings. It may seem strange, yet it is nevertheless true, that this substitution of a cultivated ethical emotion for a natural desire, is, in the vast majority of instances, entirely successful. Civilization without religion is impossible. The very foundations of society are based on elements springing from religious belief. The rise and subsequent downfall of ancient civilization prove the truthfulness of this assertion. Notwithstanding the fact that Aphrodite was worshipped in ancient Greece, and Holy Knût ranked very high in the theogony of ancient Egypt, virtue was considered a *sine qua non*, and the curses of the gods to be the portion of the licentious and the libidinous. As soon as the people became irreligious, consequently immoral, civilization vanished and savagery reasserted itself.

Civilized man no longer defends his womankind with the natural weapons of his pithecoïd ancestor. In the process of civilization he has learned to build around woman an invisible but insurmountable barrier, made up of certain well established psychical elements called morals. Woman herself has acquired auto-defensive weapons—modesty, virtue, chastity. Innate animal passion is by no means extinct in men and women; it is simply, for the good of society, directed and held in check by a cultivated function—morals.

Men, owing to their environments and their opportunities, learn early in life the difference of the sexes. Woman, hedged in by conventionalities and deterred by her modesty, remains in ignorance of sexual knowledge until her marriage. For this reason it happens that very many more women than men experience religious emotion. Young married men and women, who are in perfect sexual health, and who have not experienced religion before marriage, seldom give this emotion a single thought until late in life when *libido* and *vita sexualis* are on the wane. Married life obtunds religious fervor.

Religion has a rival in the husband or wife, in the father or mother, or in the child. So true is this in the case of the woman that I venture to assert that seven out of ten women, if such a test could be instituted, would willingly prefer to give up religion rather than their husbands or their children. Voltaire was a cynic and an infidel, yet he was, withal, an accurate observer. He says of woman that when she no longer is capable of pleasing man, she then turns to God. The spinster who is unsuccessful in the pursuit of a husband turns to God and religion with impassioned zeal and energy. Unsatisfied sensuality frequently finds its equivalent in religious enthusiasm. The nun Blanekin was continually worried about the circumcised foreskin of Christ; where it was, and what had become of it. St. Catherine of Genoa, in an ecstasy of *libido*, would frequently cast herself on the ground, crying: "Love, love, I can endure it no longer!" St. Armelle and St. Elizabeth were troubled with *libido* for the child Jesus. A recent historian tells us that the nuns sent over to America in the early days of colonization to convert the Indians, were frequently seized with frenzy, and showed by their words and actions that sexual desire was the incentive of their intense religious emotion. Says he, when speaking of Marie de l'Incarnation: "She heard, in a trance, a miraculous voice. It was that of Christ, promising to become her spouse. Months and years passed, full of troubled hopes and fears, when again the voice sounded in her ear, with assurance that the promise was fulfilled, and that she was, indeed, His bride. Now, ensued phenomena which are not infrequent among Roman Catholic female devotees, when unmarried, or married unhappily, and which have their source in the necessities of a woman's nature. To her excited thought, her Divine spouse became a living presence; and her language to Him, as recorded by herself, is of intense passion. She went to prayer, agitated and tremulous, as if to a meeting with an earthly lover. 'Oh, my Love!' she exclaimed, 'when shall I embrace you? Have you no pity on the

torments that I suffer? Alas! alas! my Love, my Beauty, my Life! instead of healing my pain, You take pleasure in it. Come, let me embrace You, and die in Your sacred arms!"² . . . Clearly here is a case for the physiologist as well as the theologian; and the "holy widow," as her biographers call her, becomes an example and a lamentable one of the tendency of the erotic principle to ally itself with high religious excitement.³ Again, he says: "Some of the pupils of Marie de l'Incarnation also had mystical marriages with Christ; and the impassioned rhapsodies of one of them being overheard she nearly lost her character, as it was thought that she was apostrophizing an earthly lover."⁴ St. Veronica was so much in love with the Divine lion, that she took a lion to bed with her, kissed it and caressed it and allowed it to suck her breasts. A German devotee, St. Gertrude, once made a speech that has since become a proverb:⁵ "Sobald das Verlange nach geschlechtlichem Umgange aufhört, dann steigt die seele hoher." The relation between religious and sexual feeling is also shown on the basis of unequivocal psycho-pathological states.⁶ "It suffices to recall how intense sensuality makes itself manifest in the clinical histories of many religious

² "O, amour! quand vous embrasserais je? N'avez vous point pitié de moi dans le tourment que je souffre? hélas! hélas! mon amour ma beauté, ma vie! au lieu de me guerir, vous vous plaisez á mes maux. Venez donc que je vous embrasse et je meure entre vos bras sacréz!", *Journal de Marie de l'Incarnation*.

³ Francis Parkman: *The Jesuits in North America*, p. 175. *et seq.*

⁴ Francis Parkman: *The Jesuits in North America*, p. 177.

⁵ August Holzknicht.

⁶ "All through the history of insanity the student has occasion to observe this close alliance of sexual and religious ideas; an alliance which may be partly accounted for because of the prominence which sexual themes have in most creeds, as illustrated in ancient times by the Phallus worship of the Egyptians, the ceremonies of the Friga cultus of the Saxons, the frequent and detailed reference to sexual topics in the Koran and several other books of the kind; and which is further illustrated in the performances which, to come down to a modern period, characterize the religious revival and 'camp-meeting' as they tintured their mediæval model, the Münster and Baptist movement." Spitzka, *Insanity*, p. 39.

maniacs: the motley mixture of religious and sexual delusions that is so frequently observed in psychoses (*e. g.*, in maniacal women who think they are or will be the mother of God), but particularly in masturbatic insanity; and finally, the sexual, cruel self-punishments, injuries, self castrations, and even self-crucifixions resulting from abnormal religio-sexual feeling."¹ Berghierri gives a remarkable instance of religio-sexual feeling. The man in question had been intensely sensual. He manufactured a cross, nailed himself to it, and ingeniously managed to suspend himself and cross from the window of his sleeping apartment. We see, frequently, instances of religio-sexual feeling recorded in the Bible. Hosea married a prostitute because—so he declared—God commanded him so to do. Solomon's beautiful song (if it is typical of the church) shows that he was thoroughly imbued with religio-sexual feeling; religious emotion and sexual desire walk hand in hand through the measures of his impassioned verses. Circumcision, eminently a religious ceremony is, unquestionably, a sexual fetic. It is not necessary to enumerate further instances of religio-sexual feeling, though the Bible fairly teems with them. Many attempts have been made to explain the relation that exists between religious emotion and sexual desire. Kraft-Ebing, Schliemacher, Friedreich, Neuman and numerous other physiologists and psychologists have advanced theories, none of which, in my opinion, are at all tenable. I believe that the relation between religious emotion and sexual desire, as we now find it, is a natural one and that it is the result of psychical atavism. In order to prove this it will be necessary to explain the origin of religious feeling. I will preface that which follows with the statement that I do not reject the theory of animism. As far as it pertains to the origin of the belief in the existence of a soul, I think that it is correct. I do not believe, however, that ancestral worship was the first religion. Solar worship undoubtedly preceded it.

The gods and goddesses of primitive man, wherever

¹ Kraft Ebing: *Psychopathia Sexualis*, p. 8

found, were elaborated from, and had their origin in, various natural phenomena. It is not at all probable that man, in his extreme infancy, just after his evolution from his ape-like ancestor, had, at first, any belief whatever in supernatural agencies. In his struggle for existence all of his powers were directed toward the procurement of food and the preservation of his life. The pithecoïd man was only a degree higher than the beasts in the scale of animal life. His psychic being as yet remained, as it were, *in ovo*, and a long period of time must have elapsed before he began to recognize and to formulate a system of theogony. After years of experience, during which the laws of heredity and progressive evolution played prominent parts, he took precedence over other animals, and his struggle for existence became easier. He then had time and opportunity to observe and study the wonderful and, to him, mysterious phenomena of nature. His psychic being sprang into existence, to satisfy which he created a god or, rather a system of gods. His limited knowledge could not explain the phenomena of nature, therefore, he looked upon them as being mysterious and supernatural. It is proper, therefore, to acknowledge that, in the beginning, the theogony of primitive man was founded on nature alone. The idea of religion, in the Terra del Fuegian and Patagonian, had not yet been evolved when they were first discovered. They had no god, and had not even elaborated any idea of the supernatural. Their struggle for existence in their sterile and inhospitable land was so severe that all their energies were expended in it. The autochthon of India, when first discovered, was, in religious beliefs, equally immature. He had no god. Even the good and evil principles were as yet unrecognized. He wandered through the woods subsisting on berries and fruits and such small animals as his undeveloped and feeble sagacity allowed him to capture and slay. He did not even provide himself a shelter, but, in pristine nakedness, roamed the forests of the Ghauts, an animal but slightly above the anthropoid

apes in point of intelligence. The gods of primitive man were few in number. The chief god of all was the sun. Man early recognized the sun's importance in the economy of nature. This beautiful star, rising in the east in the morning, marching through the heavens during the day, and sinking behind the western horizon in the evening, must have been, to the awakening souls of men, a source of endless conjecture and debate. What was more natural than their making him the greatest god in their system of theogony! They recognized in him the source of all life, and when he appeared above the eastern horizon, they turned their faces toward him and bowed in adoration. Even to this day, relics and reminders of the solar worship of our ancestors exist in us. Our ancestors, unable to look upon the bright sun, closed their eyes. Just so we, following a perfectly natural law, close our eyes when addressing God. The worship of the sun was universal. The generally conceived idea of the sun held by primitive man, was, that he was a god who came up out of the east (the sea where known), who marched through the heavens during the day, and who was swallowed up by a great and powerful beast in the west at nightfall. This great beast moved under the earth during the night, occasionally striking it with his back (earthquakes), and regurgitated the sun in the east in the morning. This belief can be found, in some form or other, in the myths and folklore of every nation in the world. We have it in the tale of "Little Red Ridinghood," the German *Rothkäppchen*. The red hood is the red clouds of dawn; the journey through the wood is the sun's journey through the heavens; the swallowing by the wolf is the swallowing by the fabled beast, and, in the German version, the ripping up of the wolf by the huntsmen, and the reappearance of "Little Red Cap" unharmed, the reappearance of the sun in the east in the morning. Again, it is found in the myths of Jonah and the whale, and Hercules and the rescued cattle. In the hymns of the Rig-Veda, and in the folklore stories of the Hindu, it appears time and

again. I have heard it, in some form or other, from the lips of Cherokees, Chihuahuas, Choctaws and Creeks. Assineboines, Mandaus, Gros-Ventres and Sioux have the same tale. Travellers inform us that they have heard it in the wilds of equatorial Africa. Several years ago it was told me by an Ishogo negro, who could scarcely make himself understood, his knowledge of English was so imperfect. The Ainu of Japan is still, to a certain extent, a worshipper of the sun. Batchelor tells us of the sacred east window, which every hut possesses, and around which are grouped their willow *inao*, or prayer sticks.

The Pueblos, Chihuahua, and numerous other Indians in southwest North America, are sun worshippers, although their religion has taken a step upwards and has become ethical (concrete) in character, for they are Phallic worshippers also. The theogony of sun worshippers has undergone certain changes in the process of evolution. As the mind of man developed, he began to go outside the phenomena of nature in the upbuilding of his system of theogony. His religion acquired a certain æstheticism, and he began to deify his emotions and physical attributes. The desire of continuing and preserving race and species is present in all animals. It is their chief end. Primitive man considered the sun to be the author of all life, therefore he made a god of him. He was to be asked daily to continue his beneficent course and thus assure to his worshippers health and life. The sun—day—was life, *per contra*, the fabled beast—night—was death. The beast was also to be propitiated. He was asked to give back the sun in the morning and not to bring misery and death into the world. The autochthon considered the fabled beast to be the author of disease and death. They considered every involuntary spasm of the muscles a visible evidence of the presence of the beast himself. This idea, unconsciously to man, continues to this day. If the baby sneezes the English mother piously ejaculates, "God bless you," the German mother murmurs, "*Gesundheit*."

We read frequently in the Bible of men who were "possessed of devils" (epilepsy), and, in Barbadoes, the negroes thrash the unfortunate epileptic "to run the devil out."

In the beginning, the sun was the good principle, the beast was the evil principle. The words, good and evil, were not used by primitive man in a moral sense. He used them in their literal sense as pertaining solely to his personal welfare. Morals are the result of evolution, primitive man knew them not. Closely allied to solar worship, and elaborated directly from it, was Phallic worship. The snake, one of the symbols of phallic worship, was regarded with awe throughout the whole world. It plays a prominent rôle in the narrative of the genesis of the human race as related in the Bible. The snake's significance in this narrative is perfectly apparent when we read that Adam and Eve "knew their nakedness" after their temptation and fall.

Primitive man regarded the sun as being the source of life. Allowing concrete ethics to come into his religion for the first time, he deified the life-producing principle as found in himself and transmitted to his offspring. Priapus (Lat.), therefore, was the first of the long list of ethical gods afterwards evolved. Phallic worship, or the worship of the generative principle, was the first ethical religion.

Vestiges of phallic religion yet linger in the most civilized nations. The be-ribboned May-pole is but the flower-decked Phallus of the Roman matrons.

The feasts of the Liberalia and Saturnalia still exist, although they have lost their significance and are hidden beneath their Christian nomenclature.

Charms against *Jettatura*, "the evil eye," can still be bought on the streets of Rome. This charm is a little coral hand, with the middle finger extended, the other fingers being closed on the palms. This was one of the most common symbols of Priapus in the ancient days when he was the most honored of all the gods. *Judy na Grig*, "Judy the giddy," still perches above the doors of

some of the most ancient Irish churches, and as late as the latter part of the eighteenth century, votive offerings of the phallus, made of wax, were laid upon the altar of a church not thirty miles from Genoa.*

We have thus traced religion to its source and find that, in its inception, it had its origin in sexual desire. Centuries and centuries of years have elapsed since that time, and religion has acquired an abstract ethical element—the love of God—yet blended with it, tho' in a measure not to be appreciated, is that ancient concrete ethical element which, in the beginning, had its origin in the worship of the generative principle.

Therapeutics of Trional.—This hypnotic (one of the sulfone series) has lately been the subject of renewed interest on account of its special value in certain cases in which hypnosis or sedation has not been so well produced by some of the other drugs employed in insomnia and the neuroses. The reports speak favorably of it as having a prompt and reliable action; for instance, in the forms of insomnia determined by neurasthenia, functional psychosis and organic brain lesions. The usual dose is 15 to 50 grains, although single doses of 45 to 60 grains, and daily quantities of 90 to 120 grains, may be given with impunity. The effect of Trional is said (*Deut. Med. Woch.*, No. 52) to be increased by giving it on alternate days with sulfonel. Boettinger (*Berl. Klin. Woch.*) states that Trional is especially useful in the insomnia observed in cases of slight psychical excitement and mental disturbances of a primary or secondary character. He gave 15 to 50 grains at bed-time. In conditions of marked excitement he often gave it in 15 grain doses several times during the day.

* Vid. Worship of Priapus.

ACUTE ANGIONEUROTIC ŒDEMA.¹

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THE recognition of angioneurotic œdema as a special form of disease is generally credited to Quincke who described it in 1882 (*Monatsh f. prakt Dermat.*, II., 129), as acute circumscribed œdema, and it has by some authors been designated as Quincke's disease. Why this should be so when the exact condition was well described by Milton in 1878 (*Edinb. Med. Jour.*, December, 1876), as giant urticaria and more or less fully by Laudon in 1880 (*Berlin. klin. Wochnschr.*, January 12, 1880), as a hitherto undescribed skin affection, and by Goltz (of Ems) (*Deutsch. Med. Wchnschr.*, 1880, No. 17), and by the writer the same year, as a peculiar form of erythema or urticaria is not quite evident. The earlier paper of Henoeh (*Berlin. klin. Wchnschr.*, 1878, p. 641), which is quoted in the literature, may not have been in reference to exactly the same disorder as the skin manifestations there are described as "purpura" and the feature of œdema is not especially mentioned in the descriptions.

My own case, which has never been quoted in the literature, was published in the *Chicago Medical Review*, for June, 20, 1880, and was entitled "Erythema or Urticaria." In substance it was as follows:

Mr. P., aged 37, carpenter, sent for the writer on the morning of March 29th. I found him suffering considerable discomfort from swelling of the limbs, accompanied with itching or burning and from headache. He had long been subject to occasional severe migrainous attacks, from one of which he was just recovering, and had been unable to sleep for two nights. For years he

¹ Read by title before the American Neurological Association, Washington, D. C., May, 1894.

had been subject to pruritus, worst in the winter and had had, a year previous, an attack somewhat like the present one, which lasted for one or two weeks. He was a pretty well built man, but looked debilitated, and on his forehead were one or two urticarial appearing wheals, angry red at the circumference, paler in the centre, the larger one about the size of a quarter of a dollar. His body showed numerous scars from scratching, and on the calves of both legs, there were tense reddish swellings, eight or nine inches long by four or more wide, occupying the outer and posterior surfaces, as I remember, more than the inner. They were attended with a burning sensation, but he did not appear to scratch them so much as some other parts of his body where there no swelling or discolorations. Drawing the finger over the tense surface produced a white trace lasting a second or more. Besides his uncomfortable sensations already mentioned, he was suffering from general malaise, and felt altogether disabled. I diagnosed the case as one of urticaria, though I felt somewhat dubious in regard to it, prescribed a purgative and local applications, also a sleeping mixture, and left him for the day. The next day I found him much more comfortable, he had slept well and his headache was gone, the swelling, however, still continued and one eye was nearly closed from œdema of the lids. I now put him on a mixture of iron and strychnine, tried to regulate his diet, and for a day or two he seemed to be improving. Then the swellings reappeared on both arms, involving the whole of the right forearm and the right hand, and also a very large space in the right lumbar region. There were also very slight febrile symptoms and the patient was absolutely miserable. The urine, examined about this time, was normal. He began to improve again, however, for a day or two when he was suddenly taken with a distress in his throat. Not expecting to find me at home, as I had told him I should be out of town, he went to Dr. N. S. Davis, who gave him a prescription containing arsenic. The throat trouble continued through the night, and the next morning I found him setting up in bed, unable to speak above a whisper, and that only with difficulty. Respiration was not interfered with to any extent. Causing him to open his mouth wide and elevate his palate, the uvula popped forward, appearing almost as large as a man's thumb, tense and glassy. I immediately clipped the uvula in several places with the scissors which gave

him almost complete relief within fifteen minutes. As there was still considerable œdema elsewhere about the pharynx, I felt a little anxious about the case lest it should extend to and involve the glottis. But from this time on he rapidly improved and returned to work, the whole illness lasting not over two weeks. Since that time, however, he has still suffered from pruritus and swelling of the feet and other parts and his uvula remained so elongated after the œdema disappeared, that it had to be clipped. After all the swelling had gone down in the lumbar region, the redness remained for some days.

As regards the antecedents of this case, I learned that during the war, in 1862 or 1863, he had suffered severely from scurvy while serving on the lower Mississippi. There were a couple of round depressed scars on the leg that were due to sores occurring about that time, but there was no history of specific disease. He had never been perfectly well since the war, and referred his pruritus to the results of the scorbutic trouble.

At the date of the first publication of the above case, I was not acquainted with Milton's article in which he proposed the name of Giant Urticaria for this form of disorder; had I been, I should certainly have adopted that designation. I reproduce the case because it has been comparatively unnoticed, and because it seems to be, with the exception of Juler's paper (*Cincinnati Lancet*, 1878, which I have not seen), the first published notice of the disorder in this country. The case is also of some interest as showing a possible causal connection between this disease and scorbutus, the presence of genuine urticaria is also worth noting, though it has been before repeatedly observed (Dinkelaker, Osler, Couty). It is, indeed, not at all remarkable if we accept the best established opinions in regard to the affection. Quincke himself recognized the close relations between the two diseases and admitted that transition forms might occur. In fact, as has been shown by Unna, Kromayer, Lesser, and others, urticaria itself is only an angioneurosis of the skin.

Scurvy as a causal factor suggests a possible explana-

tion of the endemic types of the disease, if, indeed, they are properly so referred; for example, the "Australian blight" mentioned by Collins, and the Turkish disease of Oppenheim and Graves referred to by Milton in his article. It is not difficult to suppose that a taint, perhaps not sufficient to materially affect the general condition, might under certain conditions reveal itself in vasomotor neuroses of the nature of the one under discussion. The relationships of the disorder to purpura have been pointed out already by various authors.

The extent of the disturbance of the general system in this case is also worthy of note. While the acute gastric symptoms often observed were lacking, there was a loss of appetite and general distress from migraine, pruritus and insomnia to an extent that exceeds what has usually been reported in cases of this disorder. It was associated with a rather severe type of ordinary urticaria, there was a certain amount of fever, and the larger swellings left behind them a cutaneous pigmentation that continued for some days.

There was no heredity in this case, and the patient has had, so far as I have been able to learn, no similar attack. At the present time, he is in improved bodily health and his neurotic symptoms, the migrainous attacks, etc., have materially abated.

As to the real relations of this disorder it seems to me that there can be no question as to its urticarial nature. Both it and urticaria are only degrees of the same angioneurotic manifestation of what is probably generally the toxine of arthritis, purpura, or some intestinal or other irritant acting within the system. As Courtois-Suffit, (*Gaz. des Hop.*,) *Rev. Generale*, August 30, 1890), says, angioneurotic oedema is nothing else than urticaria; truly an abnormal form, but one long known, described and classified by numerous writers under the name of giant urticaria. That is, if we accept the disorder in its typical form as described by Milton, Laudon, Quincke, Lovett, (*Boston M. and S. Jour.*, October 30, 1890), Collins (*Am. Jour. Med. Sci.*, December, 1892), Osler (*Am. Jour. Med. Sci.*, April,

1888), and others. If, on the other hand, we include under this head all the multiform localized œdemas that have been described by various authors, some of whose papers are referred to in the literature as given by Collins and Lovett, we have a range of clinical symptoms extending altogether outside the limits of any one well defined disorder. The *arthritisme abarticulaire* of Chauvet (Soc. Med. des Hop., *Gaz. Hebd.*, February 15, 1884), which is described as hard nodosities under the skin, is not the same affection and could not well be mistaken for it. The term angioneurotic œdema may, however, be applicable to it as well as to the cellulitis of Stapfer (*Ann. de Gyn. et d'Obst.*, July and August, 1893), the indurative œdema of Mracek (*Monatsh f. pr. Derm.*, XI., 1891, Abstr.) and some of the arthritic œdemas of Huchard (*Rev. Gen. de Clin. et de Therap.*, December 20, 1893). The term is, therefore, too comprehensive and not descriptive. While I have used the term in the heading of this communication, I do not recognize its perfect fitness to cover the condition even though qualified by the adjective "acute." Acute essential œdema, proposed by Etienne (*Gaz. hebdom.*, January 13, 1894), seems equally inexact.

If we accept the prevalent conception of the disease, that it is due to an overfilling of the lymphatic vessels of the papillary layer of the skin from vasomotor nervous disturbance we must exclude the deeper situated angioneurotic (?) infiltrations which moreover present an altogether different clinical syndrome, and place it pathologically on the same basis as urticaria which is a lesser and more local manifestation of the same underlying condition.

CEREBRAL HEMORRHAGE, DUE TO SENILE ATHEROMA.

To which is added an account of the autopsy with remarks.

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THIS case of cerebral hemorrhage, which recently occurred in my practice in Denver, Col., is of more than passing interest on account of the rather careful ante-mortem study made of it, and the verification, by post-mortem examination, of the diagnostic and prognostic conclusions drawn therefrom.

At one o'clock on the morning of April 24, 1894, the patient, William J. D., fifty-eight years of age, was discovered lying face down on the floor of his bed chamber. His moans of distress had aroused the occupants of an adjoining room, who forced an entrance into his room and raised him to the bed from which he had fallen. He was in a semi-unconscious or dazed condition and unable to give an intelligent account of the happening, though he could be made to comprehend some things said to him. The room was dark and the man in night attire, with nothing to indicate that the attack had been preceded by anything calling for relief. I was immediately summoned, and reached his bedside twenty minutes past one o'clock. Being a stranger to me, and but little known to those lodging in the house, I was unable to learn anything of his past life or antecedents, save that he was a Grand Army veteran, and temperate and regular in his mode of living. From an attendant I learned that the man had retired at 9.30, apparently in his usual good health, and with nothing to indicate that his end was so near.

When I entered the room the patient was in a comatose condition, though he could be partially aroused, but not sufficiently so to comprehend anything I said to

him. Within ten minutes thereafter, he sank into a state of profound unconsciousness from which he did not recover.

Inspection revealed hemiplegia of the left half of the body involving all parts, except the head and face. At first it was only partial, but within a few minutes after my entrance, it became complete. The deep reflexes of the arm and leg and plantar reflex on the left side were abolished. The only ocular disturbance observed, was dilatation of the right pupil, and a pin-head left. Not having my ophthalmoscope, an examination of the *fundus oculi* was not made. In attempts to vomit, which were frequent at first, the tongue protruded in the median line. There was no conjugate deviation of the head or eyeballs. There was some difficulty in deglutition, and an excessive bronchial secretion, which necessitated placing the patient on his side, and frequent cleansing of the throat. Respiration was typically Cheyne-Stokes in character.

The pulse was fifty-eight per minute, moderately full and strong, and slightly irregular. Having despatched a messenger for my thermometer, which I had forgotten to take with me, I took the temperature one hour after the onset of the attack and found it to be 97.7° Fahr. in the right axilla, and 97.5° Fahr. in the left. The skin was cold, but not clammy, there being at no time localized or general perspiration.

There was incontinence of urine, but not of feces. The face appeared natural, being neither pallid nor turgid. From the first there was an almost constant movement of the right hand and arm and, to a lesser extent, of the right leg.

At two different times, early during my study, I observed slight general convulsive movements. Inspection, palpation, and percussion of the thoracic and abdominal viscera, revealed nothing abnormal, and the intensity of the bronchial râles made thoracic auscultation of but little value. There was present a friction sound which seemed of pleural origin on the left side. There were no evidences of alcoholism, syphilis, or tuberculosis, the man appearing well nourished and robust. Being pressed for time, however, I gave a diagnosis of cerebral hemorrhage with a prognosis of death within twenty-four hours. Consultation was requested by myself, but none secured.

After discussing the management of the case, I re-

turned home and called again six hours later. At that time the thermometer registered 99.7° Fahr. in the right axilla and 100° Fahr. in the left, a reversal of the ratio before ascertained. Pulse sixty per minute, regular, and of moderate force and volume. Respiration feeble and less Cheyne-Stokes in character. Pupils nearly equal and normal in size. Unconsciousness profound. Movements of the right arm and leg had ceased, and they appeared parietic. All reflexes abolished. Incontinence of urine, but not of feces. No marked change in appearance of the face or skin. There was a rapid failure of the vital powers presaging early dissolution.

Death occurred at 10.50 A.M., or nine hours and fifty minutes after the onset of the attack.

My diagnosis, as written after my second visit, and which was submitted to Dr. A. Stewart Lobingier, pathologist in the University of Colorado, pending the post-mortem, which he kindly consented to conduct, was as follows: "Hemorrhage into the right internal capsule, or into the centrum ovale, very near to the capsule. I believe the hemorrhage is extensive, cutting off the fibres from the cortical leg, arm, and trunk centres, and compressing the sensory fibres in the posterior limb of the internal capsule. The artery primarily involved probably being the lenticulo-striate branch of the right middle cerebral, the hemorrhage being spontaneous (occurring presumably during sleep) and due to atheromatous degeneration of the vessel walls."

At seven o'clock the post-mortem was held in the presence of the graduating class of the Medical Department of the University of Colorado, and the following is the report, as written by Dr. Lobingier: "Male, *æt.* 58. Age apparently older than that given. Body very airily nourished, large and well proportioned. History: Hemiplegia sinistra etc., etc. First attack ten hours prior to death. Suspected hemorrhage into or bordering on the right internal capsule and centrum ovale, extending to the cortex on the right.

"Sectio-Calvaris: Marked dural and subpial injection, with dilatation of veins. Dura, non-adherent. Pia, slightly so in the pachionian region. Circle of Willis and basilar arteries atheromatous (senile).

"Cerebrum removed: During removal of the brain, a two ounce clot broke through the cortex at the junction of the intra-parietal, with the occipito-parietal fissure. Left lateral ventricle contained a half drachm excess of

fluid. Choroid plexus was slightly cystic. Right lateral ventricle was normal, except at the middle of the internal capsule, at which point there was a communication with the cavity occupied by the blood clot.

"Section of right hemisphere: A large cavity from which the clot escaped extended from the middle occipital convolution forward, with the cortex for its lateral boundary, to the transverse frontal sulcus, and inward into and under the middle and posterior portions of the right lateral ventricle.

"Another hemorrhage (subcortical) had occurred about the middle of the intra-parietal lobule of the left parietal lobe. This clot was about one centigram in weight. The only other lesion resembling a clot, found on section, was a coagulum the size of a pea situated at the posterior portion of the vault of the fourth ventricle. The anterior and posterior borders of the pons varoli exhibited acute parenchymatous degeneration. The entire internal boundary of the large clot in the right hemisphere showed characteristic softening." This report of the autopsy confirms my diagnosis made prior to death, and explains other phenomena observed during the progress of the attack. It was impossible to definitely ascertain what artery was the source of the primary hemorrhage, as all the branches of the right middle cerebral were later involved. The fact that hemiplegia was followed later by hemianæsthesia, proves that the lesion extended from before backward, cutting off successively the motor and sensory fibres within the centrum ovale near to the capsule.

In commenting upon this case, Prof. J. T. Eskridge gave it as his opinion that the movements of the right arm and leg observed at the time of my first visit, and noted in the early part of this report, were caused by the presence of the coagulum found in the floor of the fourth ventricle and that their cessation at the time of the second visit, six hours later, as noted elsewhere, resulted from the presence of the small clot found in the left cerebral hemisphere either compressing the cortical motor centres, or cutting off the fibres extending inward from them.

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microscopical purposes and transferred to new hardening and embedding material, and then it was noted that practically all the lesions were in the cervical and upper dorsal region. Three sections were made of the cervical, four of the dorsal, and only one of the lumbar. The autopsy was not made till thirty-six hours after death, and so it was impossible to do much cellular work on the cord, as a consequence of which attention has been paid only to the regional condition.



FIG. 1.



FIG. 2.



FIG. 3.



FIG. 4.

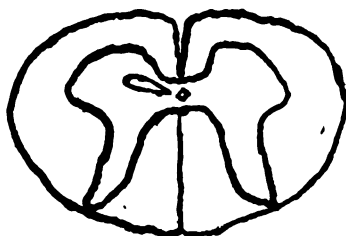


FIG. 5.

The figures Nos. 1, 2 and 3 are diagrams made from the microscopical appearance of the cervical cord sections, and No. 4 from the first dorsal section. In figure 1, will be noted the areas involved as follows, viz.: The posterior root zones, or columns of Burdach, had on either side largely dropped out in the prepara-

tion, and the surrounding areas that are indicated show the extent to which softening has occurred.

In many of the nerve fibres around these regions the axis-cylinders are swollen. The blood-vessels are engorged here as in other areas of the same section. In either column of Goll are small broken-down areas. In the left lateral column are seen one vacuole (*a*) and one broken-down area lying posterior to it. In the right lateral, or mixed lateral, tract is one large broken-down patch. On this side, the fibres running from the gray matter to the surface of the cord posteriorly are broken up in their course.

In the second section, taken an inch below the first one, are the same conditions found, but more extensive in area. However, the column of Goll shows but little on the left side. The left root zone is all gone to an extent more than half way to the commissure, and with it has gone a part of the root fibres. At this level alone appears an inflammatory change of very small extent of the direct cerebellar and lateral pyramidal tracts, and the same in the mixed lateral. On the right side the change in the mixed lateral is extensive. The posterior roots are broken down on the side adjoining the column of Burdach, which latter is destroyed completely half-way up to the commissure, with one-half that of the column of Goll.

In the third section, taken an inch and a half below the preceding one, all the areas of changed tissue have diminished very much in extent. The left column of Goll shows a broken-down area, and that of Burdach more so. The roots are free, as is the rest of this side of the cord. On the right side there is a small area of the mixed lateral gone, and of the column of Burdach next to the roots.

In the first dorsal section (No. 4) are found very small areas of degeneration in the right column of Burdach and in the right direct cerebellar tract. In the remaining sections no regional changes are found. In the gray matter only one change was noted. In the base of the right upper horn is a cavity of the shape outlined in figure 5, which is constant throughout the length of the cord, varying in size at different levels. To this cavity there is a distinct limiting membrane. It is of sufficient size to be easily followed with the naked eye.

Throughout the cord, but more especially in the lower posterior positions, can be seen some very large

blood-vessels, two of which cut transversely across look like small hemorrhages to the naked eye. These two are on the right side in the posterior lateral region.

In some way, possibly from the pressure and its rapid changes, a number of hemorrhages probably occurred in the cervical cord, and, as a result of these, there came secondary softening and inflammatory changes of the different columns that have been involved. Yet all traces of hemorrhages have disappeared, but it was two months and six days from the onset of his trouble till his death. And again, from the fact that the largest amount of present degeneration is found here, I would infer that the original lesions had been most extensive at this level, and it is barely possible that the lesions at the other levels may be secondary to this one. On the contrary, though, the irregular distribution of the degeneration areas of one level as compared with those of another, is against this idea.

The fact that a helmet was worn may be worthy of consideration in attempting to formulate an idea of the selection of the cervical region for all the lesions. Yet I am not familiar enough with these cases to know if cases of palsy from diving in a diving suit differ from cases of palsy arising from work in a caisson.

The cavity in the gray matter does not seem to bear any relation to the disease at all, and this idea is strengthened by its lining membrane. The first rise of temperature, I take it, marked the onset of the myelitis.

Anti-Toxine in the Treatment of Trismus and Tetanus Neonatorium.—The method of treating trismus and tetanus neonatorium as recommended by Tizzoni has been recently successfully employed by Prof. Escherich. The antitoxine was used in four cases, in three the infection was so great that death ensued from septic pneumonia, but in the fourth case after the second injection the spasms ceased and the patient recovered entirely in a short time.

(*Medicinisch-chirurgische Rundschau*).

B. M.

AN INCHOATIVE PARANOIAC.¹

BY MARTIN W. BARR, M.D.,

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Elwyn, Delaware County, Pa.

I PRESENT the following case of incipient paranoia as illustrating a peculiar type of moral deficiency—a type in whose composition the moral sense (in its highest meaning) seems to be entirely absent, who recognizes no such rules as right and duty, and in whom the sentiments of affection and sympathy are unknown.

Landon Carter Gray² makes the following striking remarks in his brilliant article on paranoia: "Moral insanity or moral paranoia, is invariably found among those who have a neurotic heredity. In these cases the moral defect may begin in early youth and continue through life. The acts of these individuals are usually without motive, although when the passions or prejudices of people have been aroused, they may seem to be nothing more than the deeds of rogues; but the useless theft of small articles by a person who is abundantly able to pay for them, the obtaining of money upon false pretences by an outlay far greater than is represented by the money thus obtained, without estimating the cost of time and labor, the utter lack of appreciation of the consequences evidenced by the act, and very frequently its stupidity, are all very evident to the dispassionate or unprejudiced and experienced observer."

The incorrigible boy who is the hero and the chosen companion of all the well-bred children in the neighborhood, and the *bête noire* of every careful mother, is an old and familiar story to us all.

But a few years past he was known only as a remarkably naughty child, but modern science now teaches us

¹ Read before the Eighteenth Annual Session of the Association of Medical Officers of American Institutions for Idiotic and Feeble Minded Persons, Fort Wayne, Indiana, May 30, 1894.

² "A Treatise on Nervous and Mental Diseases." By Landon Carter Gray, Philadelphia, 1893, p. 638.

that such an one is primarily no more responsible for his vicious tendencies than he is for his own birth ; but it also teaches, that these same vicious tendencies, while they cannot be entirely eradicated, may by extreme care be repressed, and the vital force thereby gained directed into more healthful channels.

F. R., a white male epileptic, aged thirteen years, was first brought to my notice August 3, 1892. His height was four feet, six and three-fourth inches; weight, seventy-two pounds. Thin and sparely built. No bodily deformity, and no paralysis. Head asymmetrical, the left side being much larger than the right; left maxillary bones (especially inferior maxillary) more prominent. Left parietal region larger than the right, which is slightly flattened. Ears unusually large and very prominent (the left one more so than the right), lobule large, conchia extremely deep. Choreic movements of the right side of the face, and countenance sly. Hair light brown, eyes blue, and complexion sallow. Mouth well shut, and teeth good. Sight, hearing, and speech perfect, but spoke in a whining, nasal tone. Right handed; feet and hands cold. Fingers crooked and "stumpy" from biting nails, but was very deft in the use of his hands and exhibited considerable ingenuity. There was no marked irregularity in walking, but he assumed a lounging gait. The account of his earlier history informs us that he began to walk when one year old. Has had no brain disease, but was extremely nervous and sensitive to pain. Has had the various diseases of childhood. Was active, noisy and restless, and eat nervously and fast. Has been circumcised. Passionately fond of music, could sing, and readily committed words of a song. Had attended school, and was in third grade. Could read and write fairly well, and showed some talent for drawing. Powers of attention, imitation, and memory good. Was further described as disobedient, untruthful, passionate, stealthy, and vulgar—a slave to evil habits; heedless of danger, destructive to furniture and clothing, with incendiary tendencies, and eloped at every opportunity. He had been much indulged on account of epilepsy, and parents had absolutely no control over him.

He was the fifth child; born at full term, in good physical condition, non-instrumental delivery. Nour-

ished by mother for first year, then fed on condensed milk.

Father, Belgian, "stone-cutter and marble worker" by trade. Extremely nervous; used alcohol, but not to excess; very brutal toward wife; aged fifty-six years at time of F.'s birth.

Mother an American, born in Maryland; is a thin, nervous, garrulous woman, suffering from some uterine disease and subject to sick headache and neuralgia. Aged thirty-nine years when child was born.

The patient has two brothers and three sisters living, and they are all sound, both mentally and physically. A brother, aged two years and seven months, was accidentally burned to death about one year prior to F.'s birth.

To create a sensation was the delight of his heart, and a few weeks before he was brought to me, he ran away from home, climbed with some difficulty and no little risk, into the private office of a railroad official, and after purloining a large pistol from the drawer of a desk made good his escape without detection. He then marched down one of the principal thoroughfares of Washington at high noon, when the street was thronged with people, flourishing the pistol and shooting right and left (fortunately without injuring anyone) until he was finally arrested by a policeman, but not before he had terrorized the people for several blocks.

For the first twenty-four hours after F. came under my observation he behaved fairly well and was very quiet and tractable. At the end of this time he suddenly began to have severe spasms in such quick succession that death from exhaustion seemed imminent. The usual remedies were applied with negative result. But after a time it was observed that these apparently frightful convulsions were unaccompanied by the usual phenomena of epilepsy, that they only occurred in the presence of a sympathizing audience, and that the violence of the spasms were in direct proportion to the tenderness of the ministrations of the nurse.

I was very soon convinced that they were unquestionably feigned, although he fancied himself complete master of his *technique*. His *modus operandi* of the simulation of an epileptic convulsion was as follows: He would rise to his feet, sway to and fro for an instant, utter a cry as though he were being choked, then dart forward and grasp some object—preferably a man around the leg, or

a boy by the neck—attempt to bite, and then fall in a tonic spasm lasting from one to five minutes, after which the symptoms quickly subsiding he would in two minutes return to his usual condition, with no heaviness or tendency to sleep. I noticed particularly that the cry which invariably ushered in the attack was not the peculiar wailing shriek of the true epileptic seizure; that in falling he was always sure to guard himself from harm; that the face became slightly red (caused naturally by the exertion); that consciousness was completely retained, and that the tongue was never bitten.

I immediately placed him on large doses of bromide of potassium and ammonium, but the frequency of the attacks continued. Occasionally, he would have a genuine epileptic spasm which was followed by a profound sleep. I then ordered:

R	Strych sulph.	gr.	iv
	Sodii brom.		vi
	Liq. potass. arsenit.		i
	Tr. digitalis.		iss
	Ext. ergot. fl.		vi
	Aquae q. s. ad.	o	i

M Sig. Teaspoonful in water before meals.

As there was still no abatement in the number of spasms, on August 16th I adopted the "drip-sheet" treatment, more for the moral than the physical effect. After each spasm showing evidence of conscious will power, the patient was carefully wrapped in a sheet wrung out of cold water at 60°F. or 65°F., the feet being left free. He was then placed on a bed protected by rubber and enveloped with a blanket, and left there from five to ten minutes. The record for this day is as follows;

II	A.M.	I assumed spasm	Wet sheet envelope.			
12.15	P.M.	I " "	"	"	"	
1.15	P.M.	I " "	"	"	"	
1.45	P.M.	I " "	"	"	"	
2.15	P.M.	I " "	"	"	"	
3.45	P.M.	I " "	"	"	"	
5	P.M.	I " "	"	"	"	
6.30	P.M.	I " "	"	"	"	
6.45	P.M.	I " "	"	"	"	
9.45	P.M.	* True spasm. Awakened from sleep. No drip sheet.				

The following conversation held immediately after one of the simulated spasms, was carefully recorded, together with those subsequently presented in this paper by the nurse, who was a man of unusual intelligence and much interested in the case.

Nurse—"Now you have again tried to deceive me. Do you think I cannot distinguish between a real and a feigned spasm?"

F. R.—"What interest would I have to deceive you? I do not like to be put in wet sheets, and if I could help it I would surely try to stop these spasms."

Nurse—"I do not know whether you have any interest in deceiving me, but I am sure that your spasms are not real, and I will report you to Dr. Barr, who will give you a spanking if you continue."

F. R.—"I am not allowed to be spanked. Thirty-five doctors in Washington and New York have called my father's attention to the fact that I am not responsible, and, therefore, not to be beaten, and if my father knew that I am put in wet sheets, he would not let me stay half an hour in this place."

Record for August 17th.

8	A.M.	I assumed spasm	Wet sheet envelope.
10	A.M.	I " "	" " "
12	M.	I " "	" " "
1.45	P.M.	I " "	" " "
2.45	P.M.	I " "	" " "
4.30	P.M.	I " "	" " "
7	P.M.	I " "	" " "
7.15	P.M.	I " "	" " "

During the next to the last spasm, the nurse picked him with a needle in order to ascertain whether consciousness were lost, and the seizure terminated instantly.

Nurse—"Now you see if you had had a real spasm you would not have felt the needle."

F. R.—"What do you know about it? These are not spasms, these are nervous shocks."

In fifteen minutes he had another which lasted five minutes.

Nurse—"I shall have to wrap you in wet sheets again."

F. R.—"If you continue to put me in wet sheets I will have more spasms than ever; the change from warm to cold causes them."

In the afternoon he went to walk with his attendant, and while out stopped to play with a group of small children. He amused himself by hiding behind a tree and throwing stones with great force at them. He also struck several small boys with a stick.

Just before going to bed he asked permission to pet a small dog that belonged to another boy. Watching his

opportunity when he imagined the attendant's attention was engaged, he caught the dog in his arms squeezing it with all his might, and digging his nails into the poor creature's flesh, while he gnashed his teeth and laughed with joy at the piteous cries of the dog.

Record for August 18th.

7 A.M.	I assumed spasm	Wet sheet envelope.
12.30 P.M.	I " "	" " "
3 P.M.	I " "	" " "
4 P.M.	I " "	" " "
4.30 P.M.	I " "	" " "
9.30 P.M.	True spasm. Awakened from sleep. No "	

One of the worst epileptics had a severe spasm in F.'s presence which he observed with the closest attention, and scarcely one minute afterwards fell to the floor in precisely the same manner, doing his best to imitate the clonic contractions of the epileptic, but without marked success. An hour later, while walking with the attendant, he suddenly said: "If I should have one of these spells will you please squeeze me?" and before the nurse could answer, F. was upon him, embracing, biting, pinching and squeezing him with a force of which he would never have been supposed capable. His face was very pale, and while in this paroxysm, a strange man passed by, to whom F., becoming aware of his presence, called with a bewildered air: "You are telling lies on me; I did not throw any stones."

Record for August 19th.

4 P.M.	I assumed spasm	Wet sheet envelope.
5.30 P.M.	I " "	" " "
9 P.M.	I " "	" " "

Directly after some of his spasms he seems to have a sudden and irresistible impulse to do mischief. After the last one he took a scrubbing-brush and, satuarting it with excrement, painted a small boy's face.

Record for August 20th.

8 A.M.	I assumed spasm	Wet sheet envelope.
8 P.M.	I " "	" " "

August 21st—No spasm.

August 22d—No spasm.

August 23d—I assumed spasm.

After this spasm, which was undoubtedly spurious, he said to his nurse: "I wish you would put me in wet sheets again. God knows I cannot help these spells, and I would be so glad if Jesus would stop them." Later,

when he went to walk, he deliberately threw a large stone and struck a very helpless boy, inflicting a painful, though not serious, wound.

Nurse—"How many times have I told you to stop throwing stones at boys? I will report you to the doctor."

N. R.—"Please let it go this time. I won't do it any more, because I know W. is a cripple."

Nurse—"But you always annoy those boys who cannot defend themselves, just like a coward."

F. R.—"I am no coward. I know as well as you that he is helpless, but that small stone (it was almost a rock) just happened (he took careful aim) to hit him, and W. makes such a noise that they thought I had killed him.

August 24th—No spasms.

To-day he urinated on the porch, though all the doors leading to the water-closet were open. As punishment he had to clean the wash room, but it seemed to have no effect. When asked how he liked that kind of work, he replied: "Exceedingly well."

Nurse—"Why did you not go to the closet?"

F. R.—"Because I did not want to take the trouble."

August 25th—No spasms.

To-day at the table he threw food in a boy's face, although he had been punished for the same offence before. As he left the table he said: "How I wish I was a man so I could kill O." He had but few spasms during the remainder of the month. On the 30th he remarked to the nurse: "Do you think it right for the doctor to put me to eat with such boys as are here? Why, I have often dined at the White House, and these boys are all like monkeys. By the way, how much do you get a week for looking after me?"

On September 1st I ordered a simple diet, consisting mainly of soups, broths, a little well-cooked meat occasionally, potatoes, well-boiled rice, fruit, milk, and bread and butter. He was placed in school, with regular open-air exercise out of school hours, and when night came he was thoroughly tired out, and ready to sleep.

One day he said: "To save my neck I do not know what I was sent here for. I don't believe the doctor here understands my case. Why, all the boys are bigger fools than I am, and I am sure I am not getting any better. These boys will never get any better, although they are taking the same medicine I am."

He had forty assumed spasms during September, and one hundred and three in October. One day, during the latter month, he observed to his nurse: "It does seem strange I cannot get better."

Had several severe attacks of epistaxis, and was at last discovered putting straws and splinters up his nose in order to induce the hemorrhage.

He became much interested in formulating plans to blow up buildings. Said it was a very easy thing to do, just place a box of gunpowder in the cellar with a fuse, then light it, and be sure to get out yourself. Later, he amused himself by playing Indian, and was particularly fond of doing the scalping act. Then he conceived the idea that he was a pick-pocket, and ran around showing the boys how easily and successfully it was practised in large cities. Boasted that he spoke six languages, and strutted around the day-rooms pouring a stream of gibberish into the ears of the other children. Then he suddenly became very profane.

Forty spasms were reported during November. Had now been in school for three months, and did quite well, but grew more mischievous every day. In a burst of confidence, told his attendant that a fortune teller, to whom his father had once taken him, had said that he had no spasms. He offered to have a spasm for me one day for five cents. When this was given him he immediately fell in a well simulated spasm. When it was over he coolly informed me that he could have a better one for ten cents, and the "better the pay the harder the spasm."

He took special delight in teasing the helpless children. When rebuked, he would say: "I was often whipped in Washington for teasing people." He would stick pins in the boys to see them jump, and at night crawled under the beds and lifted up the slats for the purpose of throwing the children out, and then told attendant that they fell out. One day he begged for a pistol to shoot some one with.

Twenty-six spasms were reported in December. It was during this month that he attempted to steal some apples, to see if they would not give him cholera, as he was very anxious to have the disease. One day, after taking his medicine, he remarked: "Doctors do me no good, neither does medicine. If I drank all the medicine in the world it would have no effect. But do you know, I think my mother was a — fool for sending me here, though I expect she was tired of me."

The "drip-sheet" treatment was continued without intermission. One night in the latter part of January he remarked that he considered it cruel, and when it was explained that it was his own fault, he piously folded his hands and said: "I would not put on spasms, oh, no, for then the 'Good Man' might make me have them sure enough."

As the weather grew colder this heroic treatment became more disagreeable to him, and in January he had only one spasm, and as that was genuine, of course he was not placed in the cold pack.

About this time he had a craving for tobacco; tobacco and nothing else was the theme of his conversation for days. Then his thoughts ran in the direction of suicide, and he calmly discussed the best way to end his life; whether by poison or the opening of a vein.

During February he had one hundred spurious spasms. The cold pack was again brought into use, and at last he became heartily sick of it, and consigned the wet sheet and myself to the infernal regions. As I have said, this "drip-sheet" treatment was used principally for its moral effect, and for the first few months it proved beneficial, but by the end of February I abandoned it, as I found it had lost its usefulness.

He still continues to have convulsions at irregular intervals, and they are most severe when he has a sympathizing audience. He is still under medical treatment for epilepsy, as many of the spasms are genuine, although it is frequently hard to distinguish between the real and the assumed. For the next fourteen months ending April 30th, 1895, his spasm record was as follows:

March, 1893—1 spasm.

April, 1893—None.

May, 1893—68 spasms.

June, 1893—60 spasms.

July, 1893—22 spasms.

August, 1893—1 spasm.

September, 1893—None.

October, 1893—65 spasms.

November, 1893—None.

December, 1893—1 spasm.

January, 1894—89 spasms.

February, 1894—None.

March, 1894—61 spasms.

April, 1894—103 spasms.

The boy has really done good work in the school, and has improved. He appears anxious to learn, but annoys the teacher by his unnecessary demands upon her attention, persisting in asking questions about work that he can do perfectly well without help. He reads with considerable accuracy, writes a fair hand, exhibits some thought in arithmetic, and shows a decided talent for drawing and modelling in clay. He has also improved in disposition, so that he is not now cruel to the children, but, on the contrary, will often help in the care of them.

At present he is four feet ten and one-quarter inches in height, and weighs eighty-six and a half pounds; having gained three and a half inches in height, and fourteen and a half pounds in weight.

The incidents and conversations that I have cited, although hastily sketched, will give a fair transcript of F's condition, both past and present. While he is doing well here under strict discipline and constant surveillance, if he were to take his place in the world, he would be as a fire-brand among the flax, and the end would probably be a tragedy perhaps equalled, but not exceeded, in the annals of crime. His evil passions are only restrained, and the ancient Latin proverb: "*Naturam expellas furca, tamen usque recurrent*," may not be inaptly applied to him.

The Treatment of Chorea by Large Doses of Quinine.—(Dorland and Potts, *Journal American Med. Assoc.*, Dec. 16, 1893). These writers give brief reports of fifteen cases of Sydenham's chorea, in which the course of the disease was materially shortened by the administration of from 4 to 6 grains 3 or 4 times a day, combined with measures intended to build up and strengthen the depressed nervous system. It is thought noteworthy that no evidences of ceuchonism resulted in any of the cases from the administration of large doses of quinine.

T. C.

LUMBAR PUNCTURE FOR THE REMOVAL OF CEREBRO-SPINAL FLUID.¹

By WILLIAM BROWNING, M.D.,

Brooklyn, N. Y.

THERE are a variety of troubles attended by an increased intracranial pressure, and this often reaches such a degree that relief is imperatively demanded. Brain-tumors, meningitis, hydrocephalus, and perhaps, some traumatic conditions come under this head; and the list might include further disorders if some harmless way of relieving were available. Of course, a radical cure by removal of the cause is the true desideratum, but in this class of cases such permanent relief is rarely attainable. Hence we turn to any measure that can give even temporary amelioration. And this seems to be all that can be justly claimed for the method here to be considered.

In a paper on Hydrocephalus, read before the Tenth German Medical Congress (April, 1891), Quincke described the results obtained by puncturing with a hollow needle and allowing the excess of fluid to run off. This he had practiced in part by boring fine holes through the skull. But he also described and endorsed a method of introducing such a needle in the lumbar region directly through the skin, between the vertebral arches, and tapping the lumbar subarachnoidal space. As the point chosen is below the cord, no serious injury can occur; at most a puncturing of some nerve or small vessel, perhaps. In an adult he had thus in an hour drawn off 80 ccm. of fluid. He recommended this plan for every hydrocephalus with pressure symptoms, especially in the acute forms, whether simply serous, or

¹ Read before the American Neurological Association, Washington, May 31, 1894.

of tubercular origin. He also suggested subcutaneous slitting of the spinal dura. And this has been done by Paget—in the lower cervical region, however,—as well as practically by others; yet even this more thorough plan gave but transient relief.

Several others have reported experience with the trocar-method, Von Ziemssen, perhaps, being its most enthusiastic advocate. My first trial was made a year since. As the results have not been very encouraging, I have done it in but few cases. In one, that of an old hydrocephalus with some exacerbation, there was subjective relief. It was also done in two cases of spinal trouble with evidence of compression of the cord. In one of these (traumatic Pott's disease, corroborated by autopsy), it was with a view to possible relief of the distressing jactation, but to no purpose. In the other, where the trouble had developed suddenly after pleurisy, the puncture was for diagnosis, and at least excluded meningeal hemorrhage.

One case may be worth relating more in detail. This and one other, were in the service of Dr. Bogart at the M. E. Hospital, and it was through his courtesy that I operated.

Boy of eight months, with gradually increasing hydrocephalus. External strabismus on right. Is apparently blind, though pupils react. Fontanelle large and full and approaching sutures open. Some tonic contracture of legs and arms. As he had first developed an irregular fever and some vomiting, it was a question about proceeding, but we decided that interference was all the more warranted. No anæsthetic. The child alternately slept and cried a little during the withdrawal of an ounce and a quarter. The fontanelle gradually sank in and the sutures closed up, except when the child cried. It was noticed that compression of the head (manual) increased the flow.

Extremities—contracture not relaxed. The child's condition was apparently not influenced by the operation. Temperature as before puncture went at times to 105°. He gradually grew worse, became comatose, and died five days later. The fontanelle had not refilled.

Autopsy by Dr. Jelliffe. General congestion of the membranes, with whitish, irregular patches over either temporal apex. Vast clear hydrocephalus of lateral ventricles. It extended freely into the third, and by a short dilated aqueduct into the fourth. This showed a sub-arachnoidal continuation down spine. On opening over the lumbar cord much free clear fluid was found. No apparent injury from the puncture. The appearance suggested that some of the fluid had escaped through the opening and collected in the extra-dural space.

This was a valuable case. At the time of puncture there seemed to be an acute increase of the hydrocephalus, perhaps a developing meningitis. The fact that pressure on the skull accelerated the outflow, that the fontanelle sank and remained so, and that at the autopsy the fourth ventricle was found to participate and the fluid here to connect with that below, all this shows that the tapping as such was successful. Thus, it was a specially favorable case, because of the good evidence that the pressure of the effusion actually was reduced. And yet the intervention did nothing, either to prolong life or relieve symptoms. In many cases, symptomatically like this, the effusion does not extend into the fourth ventricle even, and then there can be little chance of withdrawing fluid from the cerebral collection through any spinal puncture. The entire failure to relieve in this instance has deterred me from performing it in subsequent cases of the kind.

ACCIDENT.

In one case, a girl of twelve years, with a supposed internal hydrocephalus from old meningitis, after only half a drachm had been secured, the respiration stopped. Narcosis was of course discontinued, and, thanks to the prolonged efforts of the staff, the girl was resuscitated. Possibly a very slight elevation of the head, in the hope of increasing the scant flow, may have favored this occurrence, certainly neither the puncture nor the small quantity withdrawn was thought at all responsible.

DIRECTIONS.

Patient in the recumbent posture on the left side. The knees may be drawn up and the spine flexed, giving a curve posteriorly.

An anæsthetic is usually advisable in adults and older children where normal sensation exists. Still, in these cases with increased brain-pressure, there may be more than the usual risk.

Elevating the head has not increased the outflow and, especially if an anæsthetic be used, is not without danger.

Strict asepsis, needle sterilized, etc.

Usually it is easier to go in between the third and fourth lumbar vertebræ. Only once have I succeeded between the fourth and fifth.

A long, firm, smooth aspirating needle (No. 3 French, or from $2\frac{1}{2}$ to 4) answers well. This can easily be connected with a tube for determining pressure if desired. Special needles have been devised, but seem unnecessary.

Enter a little to one side of the median line (Q. says 5 to 10 mm. laterally, though in children he finds it better to pass directly between the spinous processes). As these latter here incline downwards, the tip of the needle on reaching the space selected may be tilted up a little the more readily to enter between.

In my adult cases the length inserted, to the opening in the needle, has varied little from 5 ctm. In children of eight months, and twelve years, respectively, it was only $2\frac{1}{2}$ ctm. Evidently these two figures give about the range of variation (Q. says from 2 to 6 ctm.).

The amount to be drawn off is clearly indicated in each case. It may be allowed to run, or more commonly drip, until the flow spontaneously reduces or ceases. This shows that the pressure is relieved, and yet only within proper limits. There seems to be no danger of air entering. Sometimes the fluid at first comes out tinged with blood collected by the tube in transit, but

this then soon gives way to clear, colorless fluid. One case has been reported with turbid fluid from meningeal inflammation, and in one evidence of hemorrhage (intracranial).

No special precautions are necessary on withdrawing the tube, or in subsequently treating the puncture (iodoform-collodion, if desired).

It is proper, of course, for the patient to lie quiet for a time.

CONCLUSIONS.

1. The method is simple, easily practiced, and rather attractive.
2. In itself it is usually without danger.
3. By it we certainly can draw off cerebro-spinal fluid.
4. The quantity in an adult at short sittings has been from 1 to 1½ ounces.
5. This, without doubt, represents the amount of free fluid usually present in the lower vertebral canal, even when occluded above.
6. In internal hydrocephalus, the relief if any, is but very temporary. In the common form due to tubercular meningitis, the result is not worth the trouble, while in the closed or sacculated forms it must rather do harm than good.
7. As a diagnostic means, *e. g.*, in suspected meningeal hemorrhage, it is valuable. And as an index of pressure it may also be worth noting.
8. It is worth further trial:—(a) as a passing relief in brain-tumors not complicated with hydrocephalus; (b) as a substitute for trephining in progressive dementia; (c) in certain spinal troubles; (d) and possibly as a means of applying medication directly to the spinal meninges.
9. In conclusion it may be said that while admissible in all cases of brain-pressure, there is nevertheless as yet no established indication for this procedure, except for diagnostic purposes.

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An Unusual Case of Hemiplegia.—J. W. Russell, M.A., M.D., M.R., C.P. (*Birmingham Med. Review*, May, 1894), reports the case as a man, aged 48, attacked with hemiplegia, the cause of which could not be definitely decided. There were two unusual conditions present in this patient. First, loss of sense of position in a limb, which, though by no means an unobserved point, is usually supposed to be dependent upon disease of the cortex, and probably of that part of the motor area corresponding to the limb affected. The occurrence in this patient of hemianæsthesia, together with recovery of power in the arm before the leg, shows that the lesion affected the posterior or "ventriculo-optic" group of arteries arising from the middle cerebral, and supplying the anterior part of the opticthalamus and neighboring parts of the internal capsule. The second unusual feature was the occurrence of double optic neuritis. According to Gowers, optic neuritis "scarcely ever results from cerebral hemorrhage or thrombotic softening, but it has been observed in softening from embolism, when the source of the obstructing plug was acute endocarditis." "It has also been met in diffuse cerebritis." In this case neither of these conditions were present.

A. F.

A CASE OF INFANTILE HEMIPLEGIA, IMBECILITY AND EPILEPSY. CRANIOTOMY.
MARKED IMPROVEMENT.¹

BY EDWARD B. ANGELL, M.D.

Rochester, N. Y.

MY object in presenting this case to the Association, aside from any interest that may attach to it as a contribution to cerebral surgery, is with a view to determine the extent of surgical interference necessary in cases of cerebral palsy with sequent symptoms of cortical irritation.

In a case of cerebral cyst, reported by myself to the neurological section of the American Medical Association, at its meeting last June, the lesion had existed from early childhood to adult life without causing further trouble than an atrophied condition of the right arm and hand. The brain in a measure had become tolerant of its existence, other convolutions assuming the function of the region affected.²

At a meeting of the New York Neurological Society in 1891, Dr. M. Allen Starr advanced the suggestion that removal of a section of the cranium over an affected area might relieve symptoms due to pressure.³

Dr. Roswell Park, of Buffalo, has also reported two cases in which simple craniotomy gave great relief.⁴

In the case about to be related it was decided for these reasons to limit the operation primarily to free removal of a portion of the calvaria, in view of the fact

¹ Read before the American Neurological Association, Washington, D. C., May 31, 1894.

² *Buffalo Medical and Surgical Journal*, April, 1894.

³ *JOURNAL OF NERVOUS AND MENTAL DISEASE*, July, 1891.

⁴ *Medical News*, December 3 and 10, 1892.

that it would be quite as easy at a later period to open the dura if need demanded.

December last, Dr. S. L. Elsner, of Rochester, brought me the little patient with the following history:

Simon G., six years of age, a Polish Jew, family history good and social condition satisfactory. His birth was difficult and prolonged, requiring instrumental interference. The application of the forceps produced a marked abrasion and depression on the forehead over the right eye, as well as upon the vertex. The abrasions healed with suppuration in a few weeks, but from the time of birth the mother noticed double ptosis for a period of eight days. Strabismus of the right eye also existed for a short time. During the first few weeks there was also noted an occasional brief tonic spasm of the right arm, while the fist was in a state of constant contracture, and the whole arm was helpless. Shortly the spasm ceased, recurring, however, at the period of primary dentition, although the loss of motion and contracture of the hand persisted. Subsequent to dentition, the tonic spasms of the right arm occurred at irregular intervals and were infrequent. They were more usually induced by fright or excitement, and attended by a marked congestion of the face and head. The hand and arm became spastic, cold and bluish, developing very slowly. The child only began to walk at the age of four, and was always lame on the right side. Even at the time I first saw him he could talk but little. During the early years of life he gave further evidence of weak intelligence, even of imbecility, by his irascibility, destructiveness and irresponsibility to control. Young as he was he made constant use of obscene words, would spit at his attendants and give utterance to a meaningless outcry at any effort to direct him. He was possessed of an inordinate appetite, and in any tantrum could best be appeased by its gratification. In July of last year the occasional tonic spasms began affecting the right leg; in December they became more general, and a month later were epileptiform, being attended with the characteristic cry, dilated pupils, frothing at the mouth and, at times, followed by sound sleep.

At my first examination in December, the general symptoms masked the signs of local irritation as a fog dims the outlines of a familiar landscape. Only after the use of a cerebral sedative, conjoined with the quiet-

ing influence of a hospital ward—its regular routine and regulated diet—could the focal indications be determined.

An examination February 11th, last, developed the following conditions:

The physiognomy was that of a peevish, mischievous semi-imbecile. In standing, the left leg was the main support, and the feet were wide apart. His gait was limping, slightly spastic and rather festinating. Skull measurement gave a circumference in the plane of the external angular process and occipital protuberance of 48.2 cm. The biauricular arc measured 31. cm. The antero-posterior diameter was 16.9 cm., the biparietal 13. cm., giving a resultant cephalic index of 77%. Hence, there was no marked departure from the normal mean dimension. However there was a perceptible flattening of the left parietal, between the bregma and parietal eminence. The teeth were jagged and irregular, and the arch of the palate unusually high.

He used the left hand entirely, the right being clenched, atrophied, cold and bluish. Forcible extension of the fingers of the right hand was painful and difficult.

Careful mensuration of the upper extremities are noted for the sake of comparison:

R. upper arm, acromion to olecranon	-	22.5	cm.
L. " " " "	-	21.5	"
R. fore " olecranon to carpus	- -	14.4	"
L. " " " "	-	16.5	"
R. hand, carpus to end of metacarpus	- -	3.8	"
L. " " " "	-	4.9	"
Circumference R. upper arm, origin of deltoid		15.8	"
" L. " " " "		16.4	"
" R. fore arm	- - -	15.6	"
" L. " " "	- - -	16.5	"
" R. carpus	- - -	10.8	"
" L. " "	- - -	12.	"
" R. hand	- - -	12.8	"
" L. " "	- - -	14.5	"

Similar measurements of the legs and feet indicated only a very slight difference, the right leg being larger and longer. There were no definite physiological marks. Pyschically, he was weak minded, had a bad disposition, was destructive, and a terror to the other children in the ward, while to the nurses he was a veritable " pest."

He exercised no control over urination or defecation, rather from a lack of decency than volition. His mother had long ago learned to give an early-morning enema to control his bowel action, while she had become indulgent to mere wetting of the bed and clothing. He was noisy and obstinate, only amenable at meal time.

Sensation was everywhere normal. The superficial reflexes were increased and the knee-jerks equally exaggerated. Vision was good and the eye ground of no moment. The pupils were equal and responsive. Usually there was marked dilatation. There was, however, inability to control the eye muscles, with resultant though not persistent strabismus, a condition of inco-ordination rather than a deficiency of muscle power.

During the period of three weeks for which he was under observation, he had characteristic epileptiform attacks daily; some complete and severe, others less marked. They occurred at night as well as during the day and were general rather than focal in character. They were easily induced by aggravating or teasing him and seemed in a measure dependent upon increased cerebral tension.

The history and examination determined a diagnosis of pressure in the neighborhood of the hand centre of the left motor area, while I was led to believe by the birth history that the trouble was due either to a hemorrhagic plaque or cyst.

It was decided to trephine and remove a sufficient portion of the cranial vault as a tentative operation, providing the conditions present did not demand more radical measures. It was hoped relief from the evident pressure would alleviate the more serious symptoms, so that the greater risk of opening the dura need not be assumed.

The operation was performed March 13th last, by Dr. Mulligan, of the Rochester City Hospital staff, with thorough aseptic technique. A tourniquet about the head satisfactorily controlled bleeding from the scalp incision. A three-fourth inch trephine was applied directly over the hand centre, determined in the usual manner. The skull was very thin and easily penetrated. Upon lifting the button of bone, the dura bulged slightly into the skull opening, but showed no pathological change. Pulsation was present, but slight. By means of a faradic current, the electrodes being one cm. apart, the dura was stimulated with a resultant muscular con-

traction in the right forearm, a very slight current being sufficient. Palpation of the dura indicated the existence of fluid, and the suspicion of the presence of a hemorrhagic cyst was confirmed by use of a small syringe, half a drachm or more of reddish cystic fluid being withdrawn.

The opening in the skull was enlarged in every direction until the limits of the cyst were reached, an opening of $5 \times 6\frac{1}{2}$ cm. being made. The vault of the overlying cranium had become markedly thin, doubtless from the pressure. Not only does the button of bone, presented for inspection, show this, but as the limit of the cystic area was reached the skull walls became much thicker, presenting the usual proportion of diploic substance. The cyst was ovoid in form and was rather in front of and above the middle third of the Rolandic fissure covering the central portion of the ascending frontal region and extending toward the second frontal convolution. It was probably shallow, since it rather interfered with the growth of the corresponding hand and arm than caused entire arrest of the development.

The readiness with which the centre reacted to a mild current with the slight diffusion of current possible, might also be taken as an indication of the superficial character of the cyst. Inasmuch as opening the dura and removing the cyst added so greatly to the risk incurred, it was decided to carry out the plan originally proposed, in order to ascertain to what extent craniotomy would relieve the patient.

The margin of the opening was carefully trimmed, the dura irrigated and the scalp replaced and stitched, a slight oozing through the minute aspirator puncture being disregarded.

The boy reacted well, had no rise in temperature beyond that which at times had been noted prior to the operation. With the exception of a single light convulsion next morning, he had no fit for over a week. On the seventh day there was a sharp rise of temperature. It reached 103° the following afternoon and was accompanied by a hard epileptiform seizure. The dressing was removed and the scalp was found bulging, although union was complete. A probe inserted into the opening of the skull from behind gave vent to a quantity of sanguineous fluid. This was speedily followed by a marked fall in the temperature and an improvement in the general symptoms. To an overtight head bandage, causing

œdema, the whole trouble was due. This, of course, filled up the cranial opening with serum, ultimately resulting in sufficient pressure upon the dura to develop an old-time convulsion.

With the remedying of this, the improvement was rapid and continuous. The mishap was of interest, however, in demonstrating the direct effect of pressure upon the motor area in producing a convulsion. Incidentally the high temperature, 103° , must have been due to the same cause, as throughout the whole period there was no inflammatory action.

With the exception of this single severe seizure, there has been no convulsion since. The boy became quiet, manageable and developed a much better disposition. He began using the right hand, although in an awkward and spastic manner. This was something he had never done before and gave his mother much satisfaction. Control of the eye muscles became much better and his expression greatly improved. The spasticity in gait was lessened and he improved in walking very much. However, there is a decided talipes equinus, with marked contracture of the adductors of the right leg. Later the tendons will be cut thoroughly with a view to still further improvement.

During the remainder of his stay in the hospital he was easily taught to notify a nurse when he wanted to urinate or have a dejection: a very notable improvement over his former indifference.

He would play with blocks quietly by himself, and refrained from teasing the children. At the present time, nearly three months after the operation, he has continued to improve, although more slowly. He has had no convulsion, is far more tractable than formerly and is no longer obscene in speech. He plays quietly about and in various ways shows a brightening intelligence. The scalp over the opening in the skull is depressed and palpation shows in the dura no sign of bulging. For this reason I am, perhaps, the more hopeful of success, since it would seem there was no communication between the cyst and the cavities of the brain.

Curiously, he has lost the rapacity of the appetite formerly marked, and is no longer destructive of his clothing.

I am aware it is rather early to predict permanent improvement, nor do I overlook the possibility of a further operation being required. But bearing in mind the

toleration shown by the brain in similar instances and considering the little risk incurred in simple craniotomy, I believe it is a wise procedure to be content with the lesser operation until the need of a graver one is demonstrated. Should that be required it is an easy matter to reflect the scalp with a view to complete the operation by removing the cyst.

October 1. The patient was seen two days ago and found to be steadily gaining. There has been no convulsions whatever, while the mental improvement, wholly spontaneous, has been very marked.

A Case of Friedreich's Disease.—H. Krause, a medical student, describes a case of this rare disease in a young peasant of twenty years, who presented no family history of nervous diseases. His father is alive and well. One of his brothers died of consumption. His mother was addicted to strong drink from her youth, and of late years has had now and then convulsive attacks, as well as delirium tremens. Her only sister, who died while some thirty years old, suffered from her seventh to eighth year from a similar uncertainty of gait. In the latter part of her life she was nearly helpless, and could only with difficulty speak. His mother's parents were healthy, yet her paternal grandmother, in the last years of her life, was disturbed mentally. His father has been married twice, and the children of both marriages are healthy. The patient was a full-term child; when twenty-one months old he was very sick, but the nature of his sickness was not to be determined. He learned to walk at the usual time, but from its beginning an unsteadiness was noticed, which increased slowly but progressively. During the last two to three years it has gone forward more rapidly, but without any acute febrile aggravation. As to the diagnosis there was no uncertainty, as all the classic symptoms were present if not all distinct: Ataxia of all four extremities, contractures of the feet, disturbances of speech, hystagmus, absence of tendon-reflexes, as well as paresis and disturbances of sensibility, pains and involvement of the sphincters, as usual, were lacking. The characteristic simultaneous involvement of several members of the same family was absent, yet the other symptoms and its beginning at the usual age—the seventh to the eighth year, place it under this heading.—*Hospitals-Tidende*, No. 30, 1893. F.H.P.

A CASE OF LESION OF THE THALAMUS.—
DEATH FROM INTESTINAL HEMORRHAGE.¹

By WHARTON SINKLER, M.D.

AT the last meeting of the American Neurological Association, I reported a case of tumor of the thalamus, with a view of adding to our knowledge of the symptoms which may occur in connection with disease of this body. I now present the history of a case in which disease of the thalamus, while producing no characteristic symptoms during life, may have had some influence in causing the hemorrhage from the colon, which was the immediate cause of death.

It is an interesting fact that many years ago, several experimenters produced ecchymoses and hemorrhages from the mucous membrane of the stomach and colon, and in the thoracic viscera, by artificial injuries of the corpora quadrigemina and thalamus. My attention was drawn to these experiments by a lecture by Dr. Wm. F. Norris on "The Ophthalmoscope in Diseases of the Nervous System,"²—in which he refers to Samelsohn who also quoted the observations of Lusana, Brown-Sequard, Ebstein and Schiff, on the effects of wounds of the corpora quadrigemina and thalamus.

Schiff (*Lecons sur la Physiologie de la Digestion*, 1867, page 417), showed as long ago as 1844, that hemisection of the thalamus or of the peduncles of the brain in rabbits was followed in eight days by stasis of the blood and softening of the mucous-membrane of the stomach. He states that Krammerer had called attention to the coincidence of certain cerebral lesions, with a special form of softening of the stomach, for which he

¹Read before the American Neurological Association, Washington, May 31, 1894.

²*Med. News and Library*, March, 1879.

proposed the name "gastromalachia rouge." Schiff, in this lecture, goes on to say that transverse sections of the pons, or at a point in the posterior angle of the fourth ventricle and section between the first and second cervical vertebræ, have the same result as those mentioned as following section of the thalamus. He believed that the extravasations and softening are probably the result of the action of the juices of the stomach, and the irritation of the food upon the swollen epithelium; he, therefore, regards the hyperæmia, a neuro-paralytic one.

Lusana (*Giornale veneto di Scienze Medice*, 1870, quoted by Samelsohn, *Graefe's Archiv. Ophthalmol.*, XXI, 1. 159) describes the thalamus as the centre for the tonic contractions of the blood vessels in the stomach and colon, and states that lesions in the thalami produce softening of the stomach and colon, and hyperæmia of the liver. Samelsohn also quotes Brown-Sequard as having proved the occurrence of hemorrhage into the organs of the thoracic and abdominal cavities after injuries produced at the base of the brain in animals.

Ebstein (*Archives f. Experimentale Pathologie und Pharmakologie*, 1874, No. 12, p. 183), showed by experiments on rabbits that two days after artificial injury to one side of the corpora quadrigemina, which resulted in a small effusion, that there was found an extravasation of the blood into the mucous membrane of the fundus of the stomach of the animal.

Upon injecting a solution of chronic acid into the anterior part of the left corpora quadrigemina, producing here a necrotic area one mm. in diameter, a change in the mucous membrane of the stomach similar to that produced by the first experiment was caused. These changes are not constant. In twenty-five cases operated upon, only nine gave stomach symptoms. When the thalamus on one side was similarly treated, a high-grade change took place in the mucous membrane of the stomach; but cutting through both thalami gave negative results.

Brown-Sequard (*Lancet*, 1871), reported that injuries

tively refused to take nourishment of any kind. There was incontinence of urine.

On March 20th, the patient began to be somewhat somnolent during the day, but rested well at night. During the night of March 22d, the patient was found in a state of great exhaustion, with shallow, feeble respirations and weak pulse. He rallied from this condition in a short time, but there was a return of the prostration on the succeeding nights. During the day his condition was variable; he was generally somnolent and, at times, in a stuporous condition, so that he could not be roused, although there were times when he could be made to answer a question, or protrude his tongue.

On the 27th, he had a convulsion, which was described by the attendant as a typical epileptic convulsion.

Dr. Gould, the ophthalmologist of the hospital, attempted to examine the eye-ground on March 29th, but he found it almost impossible to do so, owing to the profound stupor in which the patient was at the time. He thought, however, there was no change in the eye-ground.

On April 3d, there had been but little change in the patient's condition for several days, except that there was slight loss of strength. The temperature had been normal or subnormal, and the patient could be made to take a sufficient amount of nourishment.

On the afternoon of this day, at 5.30 P.M., the patient had suddenly, and without any intestinal or other symptom, a profuse hemorrhage from the bowels. About one and a half pints of blood were discharged. It was largely in clots, some of which were dark, but most of the blood was bright. He was seen almost immediately after this hemorrhage by myself, as I happened to be visiting the ward at the time. He was delirious and extremely nervous, having to be held in bed. An examination of the rectum showed no cause for the hemorrhage, and the abdomen was not tender. The pulse was strong, and normal in frequency. Cold was applied to the abdomen, ice suppositories introduced, and ergot given hypodermically. One hour after the first hemorrhage, a second occurred, about the size and character of the first. This was again followed by delirium, but more violent and prolonged. The hemorrhage seemed to have no effect upon the circulation until the third occurred, at about 8.30 P.M. The patient now became very much weaker, and, in spite of strong stimulation, gradually sank, and died at 8 A.M., fourteen and a half hours after the first

hemorrhage. He was delirious during the greater part of the last night.

The post mortem was made twenty-eight hours after death. The pleural cavities each contained about one drachm of clear fluid. The lungs were exceptionally healthy. The pericardium was normal, and the heart was healthy, except for a few atheromatous plates at the beginning of the aorta. The spleen was normal in size, but of softer consistency than usual, and the trabeculæ were prominent. The kidneys were congested, but presented no pathological changes. The large intestine, from a point two and a half inches below the splenic flexure to, and including, the rectum, was distended with clotted and fluid blood. The walls of the intestine were stained a deep purplish red color by the contained blood. On opening the intestine, a careful examination failed to reveal an ulcer or other lesion which could have been the source of hemorrhage. The mucous membrane of the colon was softened, and seemed to have been involved in a diffuse hemorrhage, capillary in character. The walls of the colon are thinned, and at points there is marked pouching of the intestinal wall. Several of these pouches are found throughout the length of the colon, and are large enough to admit a pigeon's egg. There is a sharp line of demarkation between the involved and healthy portions of the intestine. The duodenum and stomach present nothing unusual in their appearance.

BRAIN AND MEMBRANES. The anterior portion of the falx cerebri is calcified for about two inches in length, otherwise the dura presents no change. There is marked evidence of an old leptomeningitis over the convexity of the left hemisphere. The vessels on this side are somewhat larger and more injected than on the right side. The vessels at the base of the brain show a slight degree of atheromatous change. On opening the ventricles, the choroid plexus is seen to be highly injected, as are the other vessels of the left lateral ventricle. The right lateral ventricle is apparently healthy. No evidence of disease is found in the cortex, but on a section of the mid-brain there is found in the posterior and inner portion of the right thalamus a small area of softening. The area involved measures one-third of an inch in antero-posterior diameter, and about one-fourth of an inch laterally. It is yellowish at the periphery, and light brown in the centre. It was not preserved for microscopic examination. A careful dissection showed no other points of disease in the brain.

Periscope.

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PHYSIOLOGICAL.

The Effect of Stimulation and of Changes in Temperature upon the Irritability and Conductivity of Nerve Fibres.—W. H. Howell (*Journal of Physiology*, April 17, 1894). During an exhaustive investigation of this subject the following general facts brought out are worthy of special emphasis: 1. The method of cooling may be used conveniently to block the nerve impulse in afferent and efferent fibres whenever it is desirable to suspend conductivity. The fibres examined regain their conductivity promptly upon being warmed, with the exception, in many cases, of the cardiac inhibitory fibres of the rabbit. When the fibres are warmed slowly some varieties regain their conductivity less rapidly than others. This difference was most distinctly shown by the reflex vaso-constrictors and dilators in the sciatic. 2. The degree of temperature at which conductivity is suspended varies in different

fibres. It lies somewhere between 5° C. and 0° C. The cardiac inhibitory fibres of the rabbit offer at least one exception, since they lose their conductivity at as high a temperature as 15° C. 3. A nerve impulse in passing into a stretch of fibre of different temperature may suffer an increase or a diminution in force, according as the temperature of this portion of the nerve is above or below that in which the impulse originated. Thus, in the motor and vaso-constrictor fibres, cooling a small area of the nerve below the point of stimulation caused a decrease in the strength of the impulses passing through it proportional to the fall in temperature, while with the vaso-constrictor fibres the strength of the nerve impulses increased in consequence of passing through an area warmer than that in which the stimulus was applied. 4. The method of cooling may be used to differentiate the physiological varieties of nerve fibres combined in a common trunk. (a) To separate the vaso-dilators from the vaso-constrictors in the sciatic. (b) To separate the reflex vaso-constrictors from the reflex vaso-dilators in the same trunk. (c) To separate the inhibitory fibres of respiration in the vagus from those causing augmented respirations. (d) To separate the effect of the cardiac inhibitory fibres upon rate from the effect upon strength of heat. 5. The difference in reaction toward cooling and heating and stimulation shown by the different physiological varieties of nerve fibres is not clearly connected with the existence of a medullated sheath or with varieties in thickness of the sheath. It depends, apparently, upon a difference in structure in the conducting portion of the fibres. 6. Vaso-constrictor and cardiac inhibitory fibres are not fatigued after continuous functional activity for an hour. 7. Certain nerve fibres lose their irritability completely or in part (stimulation fatigue) at the point of stimulation, when the stimulation (electrical) is prolonged for several minutes. This property is shown most clearly by the vaso-constrictor and sweat fibres of the sciatic nerve. Vaso-constrictor fibres at their origin from the cord and in the cervical sympathetic, when they are medullated, do not exhibit this phenomenon. A. F.

PATHOLOGICAL.

Pathological Study of a Case of Acromegaly
by ***Professor Arnold.***—(Virchow's Archiv., vol.

cxxxv.). The onset coincided with the meno-pause. The face, hands, feet and trunk increased rapidly in volume for the first six months, continued to grow for three or four years, and then remained stationary for six years. The patient had paræsthesiæ in the extremities, and attacks of migraine. Towards the end of her life a condition resembling general progressive paralysis developed.

The following pathological changes were found (*post mortem*): In the hypertrophied parts thickening of the epidermis and cutis, a large amount of pigment in the rete Malpighi, hypertrophy of the sudorific glands, numerous warts and mollusca fibrosa; thickening of the walls of the blood-vessels; thickening of many of the bones, arthritis deformans of the articulations; the length of the bones unchanged; the muscles partly hypertrophic, partly atrophic; the peripheral nerves and the lower part of the cord thickened (increase of the interstitial connective tissue with hyaline degeneration of the nervous elements); degeneration of the pyramidal tracts; two areas of cerebral softening; the *hypophysis* increased in size, containing an adenoid tumor; the right lobe of the thyroid, and the thymus hypertrophied. In this case there is hypertrophy of the soft parts and the bones with degeneration of the muscles, nerves, and blood-vessels. The changes found in the hypophysis are insufficient to explain the affection, and the author considers the condition to be of tropho-neurotic origin.

R. K. M.

Some Diseases of the Thyroid Gland.—(Greenfield, *Lancet*, December 16 and 23, 1891). Dr. Greenfield presents the following summary of his admirable Bradshaw lecture: He had endeavored to show: 1. The peculiar characters of the changes in the thyroid gland in Graves' disease. These consist mainly in a proliferation, which, from its character, suggests increase of secretion. In what way the chemical nature is altered we do not know. 2. That there is sufficient evidence that removal of even a part of the affected thyroid gland causes the diminution, and often cure, of the disease, with atrophy of the remaining part of the gland. This can scarcely be explained, unless on the hypothesis that the enlargement of the gland is distinctly causal. 3. That the condition of the central nervous system and of the cervical sympathetic nerves reveals evidence of a partly chronic, partly acute, widespread nutritive

change, limited in degree, but associated with slight irritative and degenerative changes, and that these appear to be most marked in the sympathetic cervical ganglia, and next in frequency in the ganglion's centres, in the mid-brain and in the commencement of the cranial nerves. The central changes correspond in their distribution to some of the degenerative changes in long standing myxœdema. It seems probable that, except in rapid exacerbations, the lesions in the pons and medulla are commonly less severe than those in the sympathetic nerves. 4. The contrast between the clinical phenomena of the two diseases and of the condition of some organs. 5. The suggestions afforded by the action of the thyroid secretion. These points taken together appear to me to justify the suggestion that the pathology of Graves' disease demand, and will repay, investigation. J. C.

Dr. Louis Rehn, (*Deutsche Med. Wochenschr.*, March 22, 1894), expressed the opinion ten years ago that the cause of *exophthalmic goitre* was the formation of poisonous products in the thyroid gland. His opinion has since been substantiated by observations in the pathology of this organ. He hopes that all doctors will soon be of accord in treating obstinate cases by (surgical) interference upon the thyroid. R. K. M.

Meningitis of Obscure Causation.—(F. Carr Bottomley, B. A., M. B. Camb., *The Practitioner*, June, 1894). It is difficult to say whether certain cases of meningitis have been due to tubercle or not. Meningitis may probably be tuberculous without tubercles being visible in the meninges to the naked eye. It is also difficult to decide whether certain cases are due to an ear disease. The signs of old or recent otitis media does not necessarily show that the meningitis was secondary to this. Some cases of meningitis following bronchopneumonia and empyema are probably of a septic nature. There is no evidence of Bright's disease being a case of meningitis. Idiopathic cases are characterized by the following points. Both brain and spinal cord are frequently attacked, and spinal symptoms are common; these symptoms are rare in other varieties of meningitis which attack both brain and cord, if we consider retraction of the head to be not necessarily a spinal symptom. In some cases spinal appear before cerebral symptoms. The duration of illness varies from one to four weeks, the variation depending mainly on the stage of the dis-

ease at which the cerebral membranes become affected. Recoveries are fairly frequent. Mercury and the iodides form the best treatment. The affection of the cerebral membranes may be either at the vertex or base, or both. The disease occurs most frequently in the cooler parts of the year. There is some evidence for considering these cases to be associated with epidemic meningitis, and for considering that the cause of both may be diplococcus pneumoniae.

A. F.

CLINICAL.

In an Analysis of 250 Cases of Epilepsy, Dr. R. K. Macalester¹ gives the following data: *Etiology*: Heredity was recorded in 30½ % of the cases; excesses in 44 cases; infantile convulsions in 27; traumatism in 24; phthisis in 20; acute febrile diseases in 17; infantile hemiplegia in 16; fright and shock in 11; birth (long, hard labor, instruments, etc.) in 10; gastro-intestinal affections in 4; exposure to high temperature in 4; chorea in 3; syphilis in 3; pregnancy in 2; abortion in 1; menopause in 3; rhachitis in 2; vaccination in 1, and bad food in 1 case. Thus, a cause either predisposing or exciting, or both, was ascertained in about half of the cases. Excesses occupy quite a prominent position among the causes. *Sex*: 138 males, 112 females. *Age at onset*, during first 5 years of life, 26%; from 5 to 10 years, 13½%—together, 39½%; from 10 to 20 years, 33%; from 20 to 40 years, 24½%; above 40 years, 3½%. The first decade of life gives the highest ratio, viz., 39½% of the total number, which is at variance with the statistics of all other observers, excepting Starr,² who, in a collection of 167 cases, found 51 as beginning in the first, and 46 in the second decade. It will be further observed that during the first 5 years of life double as many cases developed as during the following 5 years—a much higher proportion than that reported by others. *Symptomatology*: *Aura*, although evidently investigated in the majority of cases, was recorded in only 42. *Character of Attacks*: Grand mal, 41%; mixed forms, 32½%; petit mal 16%; grand mal with Jacksonian epilepsy, 6½%; rotatory in 2, and physical epilepsy in 6 cases. *Frequency of Attacks*: 1 or 2 attacks monthly, 26½%; irregular and in groups, 24%; 1 or more attacks daily, 17½%; 1 or more attacks

¹ Notes on 250 Cases of Epilepsy, *New York Medical Journal*, January 27 and February 24, 1894.

² Starr: Familiar Forms of Nervous Diseases.

weekly, 17%, and 1 or more attacks yearly, 15%. *Time of Attacks*: Diurnal and nocturnal, 46½%; diurnal, 37½%, and nocturnal 15¾%. The *mental condition* was impaired in 36 cases. *Stigmata* were recorded in 29; *hemiplegia* in 16, and *post-epileptic hemiplegia* in 6 cases.

M. enumerates four interesting cases of psychical epilepsy, and emphasizes the importance of being able to diagnosticate this form correctly. In regard to *treatment*, he concludes that our old standby, the bromides, still ranks the first in our therapeutic armamentarium, but Flechsig's new opium treatment—of which we shall presently gain more important information from Dr. Joseph Collins—gives promise of a most important addition to our therapeutics. J. C.

Dr. Jul. Althaus, of London (*Deutsche Med. Wochenschr.*, March 29, 1894), proposes to substitute the name of Neurasthenia by *Encephalasthenia*, because the former is unpopular and not precise. Neurasthenia means weakness of the nerves, whereas the disease under consideration is due to failure of brain power, characterized by irritability, and diminution of the muscular strength. A. advocates the theory of a diminished production of animal electricity in connection with failure of brain power. R. K. M.

Modified Epilepsy.—Dr. Choupe (*La Médecine Mod.*, April 18, 1894) observed the following case: Until 1873, a woman had 120 to 150 convulsive attacks yearly. Then pot. brom. was administered (6.0 *pro die.*), and continued ever since. The following year she had 60 attacks, the following 6. Since 1875 she has only one attack yearly. At the same time as the epileptic seizures disappeared the patient experienced attacks of vertigo, which were always accompanied by involuntary emissions of urine of over a litre at a time. Such seizures occur four to six times yearly. R. K. M.

Chorea and Infections.—Dr. Haushalter (*La Méd. Mod.*, May 20, 1894) observed a case of chorea in a boy suffering from a fissura ani with inguinal lymphomata, and another case in a girl affected with mumps and consecutive initial endocarditis. He concludes that chorea may arise from the virus of various infections. R. K. M.

PSYCHOLOGICAL.

Clinical Forms of Mental Troubles Following Acute Diseases.—Drs. E. Regis and A. Chevalier-La-

vaure (Abstract from the report presented at the Congress of the French Alienists, *La Mercredi Médical*, Aug. 9, 1893), state that the tendency of the day is to consider the cases of insanity, connected with various infectious diseases, as the result of intoxication, and that they generally take the form of what the Germans call "*Verwirrtheit*, and which Charlin so well described in France as *confusion mentale primitive*. This opinion seems to have been accepted, unanimously and supported by various eminent authors. This form of mental disease was previously described in France by Esquirol, Dagonet, Achille Foville Jr., and Delasiauve. *Etiology*: The predisposing factors are: Sex; women are especially predisposed; age, 20 to 40 years; hereditary is scarcely to be considered; rhachitis and all weakening diseases of childhood. Causes: excesses, febrile infections, diseases and auto-intoxications of all kinds, confinements, lactation, traumatic and mental shocks, operations, etc. All the authors agree that this disease is the consequence of cerebral exhaustion. *Symptomatology and definition*: (Taken from Wille's excellent description.) Mental confusion is an acute or chronic functional disease of the brain, beginning generally with an acute hallucinatory stage, which is characterized subsequently by mental confusion, incoherent delirium, absence of repose without motive, alternating with inter-current conditions of excitement and stupor. During the periods of quietness there are hallucinations and delusions which are still more striking during the paroxysms, in which the patients are sometimes sad, excited, anxious, painfully impressed, or angry; or they display all these conditions alternately. The paroxysms of excitement may approach melancholia agitata, mania, (*Tobsucht*), or agitated delirium. They generally change rapidly and immediately into a stage of stupor. In the periods of quietness the patients betray great prostration. The mental faculties and conditions are weakened: speech often incomprehensible and incoherent. The onset is generally sudden; the course may be continuous, remittant, or paroxysmatic, but is oftener an irregular combination of the different stages. The duration varies from a few days to several months, or even years. In regard to the pathology, anæmic conditions of the brain, and cerebral oedema with meningeal troubles, have been described, which lead Wille to consider mental confusion as constituting an intermediate form of insanity between

the purely functional and those with an anatomical basis. *Classification and Division*: Mental confusion resembles closely those conditions that are observed in different intoxications, alcoholism, saturnism, also rheumatic, cardiac and Brightic insanity. Most authors admit a simple mental confusion without hallucination, and a hallucinatory confusion. But a third mixed type might be admitted which presents the symptoms of the two preceding, occurring at any period of the infectious disease, but especially during convalescence, manifesting itself in light cases by delirium of grandeur and some somatic signs, in severer cases by the symptoms of dementia paralytica, and amenable to disappear rapidly, or to become progressive. It will be observed that there is at present a tendency to consider the last-named malady, viz: dementia paralytica, as depending upon a toxic influence, viz., the toxins produced by the microbe of syphilis.

R. K. M.

THERAPEUTICAL.

Chloralose.—Chas. Flemming, M.R.C.S. (*The Practitioner*, July, 1894). Chloralose ($C_6H_{11}ClO_6$) is formed by heating a mixture of glucose and anhydrous chloral. It occurs in white crystals, feebly soluble in cold, but freely in hot water, and has a slightly bitter taste. In a healthy man it soon causes an irresistible desire to sleep. The subject can be easily awakened, but quickly goes to sleep again. On awakening, there is no unpleasant sensation. There is no alteration of arterial pressure. Temperature is lowered from one-fifth to three-quarters of a degree. The dose is from two to six grains in milk or cachets. Sleep occurs in from twenty to sixty minutes and lasts from four to ten hours or more. After larger doses slight tremor and vertigo are recorded, and two cases of temporary poisoning have been published. It is neither an anodyne nor narcotic. Chloralose is beneficial in all forms of functional sleeplessness, in insomnia of psychical excitement, hysteria, neurasthenia and overwork, functional cardiac irritability, and in attacks of epilepsy and somnambulism. It may enable us to separate subjective from objective pain and so help in the differential diagnosis of some forms of hysteria. It will avail nothing in the insomnia of alcoholic excitement, multiple neuritis, cerebral hemorrhage, or the sleeplessness due to any painful organic lesion or peripheral irritation.

A. F.

The Value of Electricity in Diagnosis and Prognosis of Affections of the Peripheral Nerves.

—William M. Leszynsky, M.D. The following conclusions will no doubt serve to controvert a number of popular fallacies relating to this subject:

1. That the value of electricity as an accessory method in diagnosis and prognosis of disease of the peripheral nerves is not as universally recognized as its importance demands.

2. That the result of this procedure often furnishes corroborative and conclusive evidence where only a provisional diagnosis has been made.

3. That the necessary technical skill in successfully pursuing such investigation and correctly interpreting the result can only be acquired through special study and practice.

4. That the use of the faradic current alone is quite sufficient for diagnostic purposes.

5. That, as a rule, the galvanic current is supplemental to that of faradism, and in the absence of faradic irritability in nerve and muscle it is of the greatest service in prognosis.

6. That the discovery of the reaction of degeneration is not an essential feature in the differential diagnosis as to the location of the lesion.

7. That the peripheral nerve fibres possess an inherent power of regeneration, which seems almost unlimited, the length of time required for the completion of the regenerative process varying from a few weeks to seven years or more. Therefore, in severe forms of injury the cause, degree and character of the damage to the nerve are often of greater importance in prognosis than the demonstration of the reaction of degeneration.

8. That the presence of R. D., or partial R. D., is not incompatible with the preservation of motility in the same area. This paradoxical condition has been found in cases of lead poisoning, and a few others, but thus far the cause has been inexplicable.

9. That strong currents are only rarely necessary. The weakest current that will produce a distinctly perceptible reaction is all that is requisite.

10. That a decrease or disappearance of faradic irritability in nerve and muscle simply denotes an interference with the nutrition in the course of the motor

tract between the multipolar cells in the anterior horn and the peripheral nerve distribution. It does not enable us to judge of the nature of the pathological process.

11. That the character of the reaction does not differ whether the lesion be situated in the cells of the anterior horn, the anterior nerve-roots, the nerve trunks, or in their ultimate distribution. The same rule holds good in reference to the various cranial motor nerves and their nuclei, such as the facial, hypoglossal and spinal accessory nerves.

12. When the farado-muscular irritability is lost, no reaction can be obtained by a rapidly interrupted galvanic current.

13. The secondary current from an induction coil is the one generally used in testing faradic irritability. Owing to its high electro-motive force the resistance encountered in the moistened skin may be considered negligible.

14. The difference in the poles of the faradic current is only a relative one, and cannot be determined by the usual tests as applied to the galvanic current. The electro-motive force in the secondary coil is greater at the "break" than at the "make." The electrode that is felt to be the stronger in its action is usually considered as the negative, or so-called "faradic cathode."

15. In some apparently healthy individuals the musculo-spiral nerve fails to react to strong currents applied with the "faradic anode," while a comparatively weak current from the "faradic anode" calls forth a quick response.

16. In a case of undoubted peripheral paralysis the faradic irritability may be preserved, but it almost invariably requires a stronger current to produce muscular contractions than upon the healthy side (quantitative decrease). [The writer has never seen a case where this could not be demonstrated within a few days after the onset of the paralysis.]

17. The character of the muscular reaction demands attention. A slow and labored contraction associated with decrease in faradic irritability denotes degenerative changes.

18. The faradic irritability may return in persistent cases of peripheral paralysis without any perceptible improvement in motility.

19. Electro-diagnosis is inapplicable in paralysis of the ocular muscles.—(*N. Y. Med. Record*, Aug. 18, 1894).

Society Reports.

AMERICAN NEUROLOGICAL ASSOCIATION.

(Continued.)

*Twentieth Annual Meeting held at the Cosmos Club,
Washington, D. C., on May 30 and 31, June 1, 1894.*

Dr. WILLIAM A. HAMMOND read a paper on

MERYCISM.

ABSTRACT.

He defined this condition as the functions of rumination and remastication in the human subject. Only about fifty cases have been reported. Several cases were referred to, among them that of the distinguished physiologist, Brown-Séquard, who had acquired it as a result of experiments performed upon himself. The case reported was that of a young man, whose mental condition was impaired and who was also the subject of merycism. No special treatment was undertaken against the merycism, but the patient was trephined with the purpose of improving his mental condition. There were no unusual features connected with the operation; but it was noticed that regurgitation did not occur with the meals he subsequently ate till on the fifth day, when there was a slight return. Eight days later a similar button was removed from the corresponding part of the left side of the skull. From that time (about six months ago) till the present there has been no regurgitation.

Whether the cure of the merycism in this case was directly due to the operations on the cranium or the result of the mental improvement is a question which it would be difficult to answer.

DISCUSSION.

Dr. KNAPP said that two cases had come to his knowledge, both in physicians, but one of them he knew of only by hearsay. The other man, now over thirty, had regurgitated his food from early childhood, and he did not know that he had anything very unusual the matter with him until he began some investigations upon the functions and diseases of the stomach. This man was not nervous, and was certainly not an idiot. He had done active work as a physician, and called himself in perfect health. He was something of an epicure and never suffered from indigestion. After a hearty meal the regurgitation was more marked. Food had been regurgitated, tasting as good as when first eaten, several hours after eating. If he attempted to check the regurgitation he sometimes had a slight feeling of fullness in the stomach.

Dr. FRANK R. FRY said that he wished to thank Dr. Hammond for his kindly mention of the paper of Dr. E. C. Runge, of St. Louis, on the same subject. Dr. Runge, in his case, had made a number of physiologico-chemical examinations which he thought were valuable.

Dr. J. H. LLOYD, said that these cases were forms of neuroses, and were types of hysterical vomiting. There was no gustatory satisfaction connected with any form of hysterical vomiting that he had seen. In some of these cases of hysterical vomiting the food does not appear to enter the stomach, but is rejected by a sort of spasm of the œsophagus. This has been called "œsophagismus," and is apparently closely allied to this neurosis, which some have called "merycism."

THE PRESIDENT said that this would seem to be an affection common among physicians. A student friend of his had been affected in this way; had written an elaborate merograph on the subject. He was disgusted with the habit, and finally overcame it by the exercise of his will power.

Dr. W. A. HAMMOND said that when it was acquired it was almost invariably the result of over-eating and loading the œsophagus, or of fast eating.

Dr. WILLIAM BROWNING read a paper on
LUMBAR PUNCTURE AS RECOMMENDED BY
QUINCKE (See page 651).

DISCUSSION.

Dr. CHARLES K. MILLS said that although the paper was interesting and reliable it did not convince him that the operation was desirable and useful.

Dr. C. L. DANA said that the author had not referred to one class of cases in which this method was applicable, viz., "wet brain," as found in so-called alcoholic meningitis. He had himself used the method three times in such cases. Two patients got well, and the other died. The patient who died was nearly moribund when the attempt at tapping was begun. In the adult the procedure was by no means sure or simple. In three out of five cases he had failed to withdraw any fluid. In two cases of oedema of the brain the fluid was successfully extracted. In one case he withdrew three ounces of fluid, but the operation did no good. He agreed with Dr. Mills as to the inutility of the operation so far as present experience went, but he would not characterize it as irrational. The removal of the fluid in pleuritic, pericardial and peritonal effusions was a benefit to the patient sometimes, and it might be in the case of cerebro-spinal effusion.

Dr. P. C. KNAPP read a paper on

RECURRENT OCULO-MOTOR PARALYSIS.

ABSTRACT.

A man of forty-one, with some nervous heredity, had had severe neuralgic pain over the left eye, with ptosis, external strabismus, and numbness of the face, a year before he came under observation. This lasted seven weeks. In December, 1892, one year later, he had intense pain in the left side of the head, with nausea and vomiting. There was complete paralysis of the left third nerve, with anæsthesia of the nose and cheek on the left side, and paræsthesia of the forehead. Photophobia was present. The anæsthetic region was extremely

tender on pressure, and there was increased discharge from the left nostril. After two months the paralysis began to diminish, and after four months it had almost wholly disappeared; but the sensory symptoms still continued in a lesser degree. Statistics were given of forty cases, and of ten other cases of a doubtful nature. In only six cases has there been complete recovery from the paralysis in the interval between the attacks, and in four more the pupil remained dilated. In seven cases there was at first complete recovery, but in the later intervals there was some paresis. Senator's division into periodical and periodically exacerbating cases hardly seemed warranted, and, although some of the cases resemble migraine, the affection in most cases is not at all like migraine. Three autopsies have shown lesions involving the nerve, and most cases are probably due to such lesions.

DISCUSSION.

Dr. C. K. MILLS thought that the explanation of an organic lesion was the only correct one in these cases, and the question resolved itself into localizing the lesion. Whether the lesion was in the external portion of the nerve, or whether in the root fibres, was a matter of doubt. These cases could be explained by syphilitic infiltration of the brain substance, involving the ascending sensory branch of the fifth. Some of these cases, in which oculo-motor paralysis was present on one side, and hemi-anæsthesia on the other, were due to syphilitic disease involving the root fibres of the third and the meniscus. Such a lesion could occur at the base of the brain and partial recovery take place.

Dr. M. PRINCE, of Boston, remembered having had such a case at one time. He was strongly inclined to believe that the English views were wrong, and he was somewhat skeptical as to the clearing up of the paralysis. The autopsies showed peripheral lesions.

Dr. G. L. WALTON said that probably cases of various pathological basis had been grouped together under this head, thus aiding the confusion. Among them were undoubted cases of gross organic lesion. There were, however, probably some cases, notably those (classed by some as migraine) in which the process was perhaps allied to the monoplegias of severe hysteria, in which the change was vascular, perhaps amounting to a localized œdema. It seems not impossible that such recurring

œdema at the cortex might sometimes cause these symptoms as well as at the base.

Dr. KNAPP said that there was no case of complete recovery from recurrent oculo-motor paralysis on record, although some cases had improved considerably. In his own case there was probably no syphilis, and syphilis had been absent in a number of the cases. There were cases of syphilitic paralysis which showed striking changes in the severity of the symptoms, but those had not been included. He knew of no case on record where there had been a complete paralysis of the third nerve from a cortical lesion; hence, any theory of a hysterical paralysis seemed to him untenable, especially as the autopsies all showed a distinct lesion of the nerve itself.

Dr C. L. DANA read a paper on

CEREBRAL HEMORRHAGE: ITS CAUSES AND PREMONITORY SYMPTOMS.

ABSTRACT.

Dr. C. L. DANA presented this paper based upon the study of 100 consecutive cases of apoplexy with hemiplegia, observed at his clinic at the Post-Graduate Hospital, and seventy-nine cases of apoplexy, with autopsy, observed in Bellevue Hospital; thirty of the latter came under his personal care and observation. Of 100 non-fatal cases, thirty-six were due to syphilis. The special characteristics of the attacks due to syphilis are that they occur in early life; they are often multiple in character, and the pathological condition underlying them is usually a thrombosis and softening. So far as his experience and records went cerebral hemorrhages are rarely repeated, and it seemed as if in many cases the rupture of an artery changed the vital conditions, as it certainly does the personal habits, so that the attack exercises a conservative influence upon the individual and actually tended to prolong life.

DISCUSSION.

Dr. E. D. FISHER, of New York, said he had a statistical report of seventy-seven cases. Fifty-one had one attack; sixteen had two attacks; nine had three attacks, and one had six attacks. These patients were all living.

The duration of life of these patients was: those with one attack, three years; with two attacks, three and seven-eighths; after three attacks, still living—in other words, the average duration of life was eleven years. Where the attacks were repeated, they were usually syphilitic or thrombotic in character. In his statistics, the proportion was sixteen cases with two attacks. This was larger than that given by Dr. Dana. The average age at time of attack was forty-four and six-elevenths years. This showed the unreliability of statistics, for, out of these cases, there was one at seventy-five, two at seventy-seven, and two at eighty-one, which thus increased the average time of seizure disproportionately. The longest duration of life was twenty-two years, and the next longest fifteen years.

Dr. L. C. GRAY, of New York, said that he did not see how any statistics could be gathered about such a general subject as apoplexy, because an apoplexy in one locality had an entirely different complexion from an apoplexy in another. For instance, an apoplexy or hemorrhage into the region of the cortex was entirely different from an apoplexy into the nucleus of the pneumogastric or spinal accessory. And indeed, an apoplexy differed according to the region of the cortex in which it was found, for one in the frontal region differed entirely from one in the motor region. An attempt, therefore, to generalize upon apoplexies of the brain is just about as unscientific as to attempt to generalize upon apoplexies in general, and to assume that we can get statistics that are reliable by jumbling a hemorrhage into the brain with hemorrhage into the stomach, or liver, or kidneys, or spleen, or muscles. A hemorrhage by itself anywhere may be perfectly harmless, or, on the other hand, it may be instantly fatal, or midway between the two, it may be fatal in some instances and harmless in others, and to attempt a generalization from all these classes of facts is, in the nature of the task, impracticable.

Dr. LEONARD WEBER, of New York City, said that these statistics were valuable, but that they would be even more valuable if more of the cases had occurred in private practice.

Dr. WILLIAM A. HAMMOND said he was rather sorry to see apoplexy again regarded as a disease by itself instead of a symptom. The mere fact of one blood-vessel

having burst did not make the others any more likely to do so. In fact, such an event was often protective.

Dr. WHARTON SINKLER said that his experience had led him to agree with Dr. Hammond. He had under observation a man who had had an attack of hemiplegia twenty-five years ago, and had never had a recurrence. He did not mean to say that he thought he was any better off for it, or that it had improved his habits or his cerebrations.

Dr. MORTON PRINCE, of Boston, said that he understood that one hundred of the cases had not been fatal; hence, we could not tell until they died how many attacks they might have.

Dr. C. L. DANA said he did not think it quite just to criticize his data, for he had not had time to read all of his paper. Some were cases of embolism, some of thrombosis, some of hemorrhage, and he had discussed them under the general head "Apoplexy." Practically, we often could not go further than this in our clinical diagnosis, and it, therefore, seemed to be a matter of practical importance to study them correctly.

Dr. WHARTON SINKLER presented a paper on

A LESION OF THE THALAMUS (See page 664.)

DISCUSSION.

Dr. C. K. MILLS remarked that the case was of interest in connection with the question of vasotonic centres in the thalamus.

A NEUROLOGIST'S PERCUSSION HAMMER.

By WILLIAM C. KRAUSS, Buffalo, N. Y.

ABSTRACT.

The neurologist requires, as a rule, but very few instruments in conducting an examination of the nervous system, and of such the percussion hammer is, perhaps, most often employed. To make the examination thorough and detailed, an office outfit is indispensable, but in the majority of cases the simplest means are used to ascertain the condition of the sensory and motor conductors, the reflexes, strength of the hands, legs, etc.

Having had occasion to make constant use of the hammer in my private and hospital practice, I have devised some improvements and modifications which widen the field of its usefulness, thus making it more serviceable to those engaged in neurological research.

The hammer is constructed after the French pattern having a heavy metallic head fixed to a flattened oval handle seventeen centimetres long. As a hammer it



may be used to examine the tendon and muscular reflexes, to percuss the head spine, superficial nerves, etc. The handle (a) being of hard rubber becomes warm on friction, while the head being of metal remains cold, thus offering the means of examining the sense of heat and the sense of cold, fulfilling the requirements of an thermo-æsthesiometer.

The cap (c) when removed discloses a triangular spear, head about one-half centimetre long, while at the other end of the hammer head is the rounded rubber points—the two ends furnishing, therefore, a sharp and a dull point for examining for anæsthesia or hyper-æsthesia.

The advantages of this arrangement over the ordinary way for examining the sensibility of a patient—*i. e.*, with a pin or needle are, that the patient is unaware of the intent of the examiner and does not become hyper-sensitive as when a pin is introduced; the spear point is not liable to penetrate through the epidermis; the examiner can strike or touch the skin with nearly uniform force, and, knowing the sharpness of the point, can better judge whether abnormalities of sensation are present or not.

The spear is divisible into two portions, one securely fixed upon the hammer head, the other movable upon a metallic slide upon which is engraved the metric and

English scales. This arrangement furnishes an excellent æsthesiometer and is as accurate and convenient as any on the market. Replacing the cap (c) and removing the cap (e) a camel's hair brush is exposed, giving a soft surface, while the metallic cap (c) gives a hard surface. The hammer is conveniently carried in the pocket, and has served me with much satisfaction.

CIRCUMSCRIBED SOFTENING OF THE PONS,
AND IN THE SAME CASE, OF THE IN-
TERNAL CAPSULE, CAUDATUM, AND LEN-
TICULA.

By CHARLES K. MILLS, M.D., and JOHN ZINNER, M.D.

ABSTRACT.

This case presented two limited lesions of unusual interest—one in the pons, and a second involving the internal capsule, and a small segment of the caudatum and lenticula. The week before the death of the patient, the pontile lesion was accurately located in a discussion of the case in a clinical lecture delivered in the area of the Philadelphia Hospital. The patient, a woman, 42 years old, had a previous history of alcoholism, and of acute articular rheumatism. A presystolic mitral and a systolic aortic murmur could be heard. For eight weeks previous to her admission, she had had almost constant headache, worse at night; and on the day before was attacked without loss of consciousness, with vertigo, double vision, and paresis of the right arm and leg. Examination showed slight impairment of mental action, marked somnolency, and imperfect articulation. At rest, the right eye turned strongly to the right, while the left was not deviated. Both eyes could not be turned together to the left. The lateral movement of the left eye to the right was also impaired, and slight nystagmus of both eyes was present. The lids of the left eye could not be brought fully together. Right facial paresis was present, but the tongue was not deflected. Tendon and muscle phenomena were much exaggerated in the parietic limbs. Anæsthesia could not be discovered in any portion of the body. For a few days, the patient improved considerably. The loss of power in the leg

largely disappeared, and paresis of the face muscles was only noticeable on smiling, but she remained totally unable to turn the eyes beyond the median line to the left. She slept, or seemed to sleep, much during this time. Her temperature slightly fluctuated, slightly below normal.

About eleven days after admission, she had a second apoplectiform attack. She was now totally unable to articulate, but understood what was said. She was also unable to expectorate, and there was interference with swallowing. She fell into a stuporous condition, with eyes fixed in the mid-position; conjunctivæ and other reflexes obtunded; right pupil smaller than left; face distinctly drawn to the right, and involuntary discharges. She died between four and five days after this second attack.

A thorough and careful autopsy was made by Drs. Guiteras and Mills; and revealed a circumscribed softening with hemorrhage infiltration. The lesion reached to within 1.5 mm. of the ventral surface of the pons; laterally extending to the raphe, and about the middle of the pons slightly across the nasal line. The area of the softening became smaller and more deeply situated as it approached the post oblongata, which it almost, but not quite reached. A transection through the horizontal furrow, separating the pons and post oblongata showed perfectly normal structure.

The second lesion was revealed by a vertical transection of the right basal ganglia and capsule. The widest portion of the lesion corresponded to the plane of the cephalic extremity of the thalamus. It was about seventeen mm. in its antero-posterior extent. The heart presented valvular lesions; and the kidneys, spleen and lungs presented pathological conditions.

The pontile lesion in this case was of unusual interest in the study of the nuclei and root fibres of the facial, abducens (external oculomotor), and third nerves (common oculomotor); and particularly with regard to connections of the facial and abducens. The lesion probably involved the root fibres of the abducens and the fibres connecting it with the facial fibres or nucleus. The position of the lesion was such as not by any possibility to involve the cell nests of these nerves. The lesion involved the crustal portion of the pons, including a portion of the pyramidal tracts, and the deep transverse fibres. The lemniscus, central tegmental tract and the

structures of the tegmentum in general, probably escaped. The case was also of interest with reference to the question of the partial decussation of the facial root fibres. A microscopical report on the case will eventually be made.

The lesion of the internal capsule was localized near the genu, probably involving the speech and the geniculate tracts; the latter, as is well known, including the cortico-bulbar bundles for the interior facial, motor, trigeminal and hypoglossal nuclei. It is probable that the attack of embolism which resulted in this area of softening took place on January 22d and 23d, when the patient's condition became much worse, and was especially marked by impairment of articulation eventually to the point of complete loss; by inability to expectorate or swallow her saliva; by drawing of the face to the right, with sputtering and drooling, and marked nasal and buccal stertor. Some at least of these symptoms were probably due to the lesion of the internal capsule and striata.

Drs. GUY HINSDALE, and J. MADISON TAYLOR, of Philadelphia, read a paper on

CROSSED KNEE-JERK.

ABSTRACT.

This paper is based on studies of over one thousand cases of nervous disease observed at the Infirmary in Philadelphia, the Institutions for Feeble-Minded at Elwyn, Pa., and Vineland, N. J. In using the term "crossed knee-jerk," it is meant that the patella tendon being struck, the opposite leg is instantly made to approach its fellow. Hence the phrase "in knee-jerk," or "contralateral knee-jerk," may be used to describe this action. The movement observed in the limb opposite to that in which the patella tendon is struck is not an extension of the leg so much as an adduction of the thigh (*vastus internus* and *crureus*). The best attitude for eliciting this movement is not that which permits of the freest knee-jerk, such as sitting on the edge of a table, or at least with the legs hanging down from a chair sufficiently high. It demands rather more ease of lateral motion of the thigh. This is accomplished very well by seating the subject comfortably in a chair with

the body erect and the knees ten or twelve inches apart, at a rather obtuse angle, the feet being advanced a few inches.

The phenomenon is observed in a small proportion of normal persons, and in thirty or forty per cent. of the cases coming to a clinic for nervous disease. It is observed in a large majority of spastic cases, the inward excursus amounting in some cases to one-half inch. It is elicited in favorable cases after suspending the subject and observing the adduction of the thigh on tapping the patella tendon or, as in one case observed, tapping the tendo-Achilles. This experiment is believed to rule out the possibility of the crossed knee-jerk, being due to a communicated blow or jar acting mechanically. In all locomotor ataxics with absent knee-jerk, the crossed knee-jerk is also absent. Crossed knee-jerk is reinforceable and is held to be a true reflex.

DISCUSSION.

Dr. G. L. WALTON, of Boston, spoke of the importance of studying anomalous reflexes in general. We have not exhausted the paths in which the reflexes may be deviated. Dr. Walton had been surprised to find (in a case of broken back) not only that striking of the thigh produced flexion of the toes, but that striking of various parts of the legs produced the same result.

Dr. W. J. MORTON said that about two weeks ago, in treating a right sciatica electrically, using sixty vibrations per minute, with one electrode upon the abdomen and the other within the vagina, he has found that the left shoulder group of muscles vibrated with every interruption of the current.

Dr. G. W. JACOBY remarked that, judging from the description of the phenomenon here given, it seemed as though we were dealing with a radiated reflex, contraction of a muscle or group of muscles quite distant from the seat of sensory excitation. The idea of the authors which made the cerebral cortex an integral part of the reflex arc, would explain many of these phenomena. The most curious, and perhaps, practically, the most valuable reflex of this kind is the one which the speaker had discovered and demonstrated to the association three years ago, and which consists in producing a contraction in the levator or quadratus menti, by making a cathodic closure with eight M. A. of current over

the area of skin supplied by the *radialis superficialis*. This is a true physiological reflex, occurs in over sixty per cent. of normal individuals, and as yet furnishes the only objective means of electrically examining any sensory nerve in the human body. No doubt, many such radiated reflexes, of which that described by the authors is another example, will in time be discovered.

Dr. C. K. MILLS said it seemed to him that the best explanation of this phenomena, was to be found in the direction indicated in the President's address of yesterday, namely, by a study of the distribution of the cells and fibres in the spinal cord, and their relation to other parts of the nervous system.

The PRESIDENT said he considered the title of the paper rather unfortunate, as he was of the opinion that the term "knee-jerk" should be restricted to an extension movement of the leg. This was a contra-lateral contraction. These same contractions had been described by several authors in connection with other troubles. In *enuresis nocturna*, these same symptoms were elicited. It was doubtful from the report whether this really was a reflex contraction.

Descending Fibres of the Posterior Roots.—

Dr. Marinesco (*La Médecine Moderne*, June 13, 1894), continuing Ramon y Cajol's researches, found that the fibres of the posterior roots after entering the cord divide themselves into an ascending and a descending tract. After cutting the posterior root of young cats, within the vertebral canal, at the second cervical root, M. observed a narrow area of degeneration in the cord which descended to the level of the third, and disappeared at the fourth cervical root. He considers these to be commissural fibres.

R. K. M.

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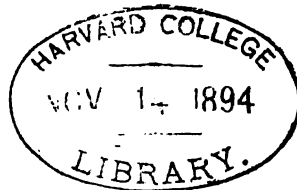
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NOVEMBER, 1894.

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Nervous and Mental Disease.

Original Articles.

A CASE OF ACROMEGALY. WITH REMARKS ON THE PATHOLOGY OF THE DISEASE.¹

BY HOWELL T. PERSHING, M.Sc., M.D.,

Denver, Colo.

MRS. A. B., aged 42, came to Denver in May, 1893, to consult Dr. John Chase about her failing vision, and was referred to me for neurological examination and treatment.

Her father is in perfect health, aged 70; his parents both survived the eighty-fifth year, and his brothers and sisters show no hereditary taint. Her mother died at fifty-four and her mother's mother at seventy-one, both of consumption. The maternal grandfather and maternal aunts and uncles have been healthy and long-lived.

The patient first menstruated at fifteen. Menstruation was generally profuse and painful; otherwise she was perfectly well until twenty-eight years of age, when her only child was born. This child, who is now quite well, was weaned soon after his birth. Menstruation returned seven months after the weaning, but was then scant and irregular, disappearing finally when the patient was thirty.

Soon after parturition pain and cramping sensations in the right leg and toes became annoying. About the time menstruation ceased a decided lack of endurance was noticed and severe headaches began to occur, the

¹ Read by title before the American Neurological Association, Washington, D. C., May 1894.

pain being at the vertex or just back of the eyes, mostly steady, but sometimes of a shooting character. At times the patient felt as though the blood was rushing to her head and crowding the eyes out of their sockets. There has been much suffering from headache ever since.

Before this she had been very slender, her waist measure being twenty-one inches, and her weight only ninety-eight pounds. Now, a decided enlargement of the abdomen, with increase of weight, was noticed. At the age of thirty-two she began to have shooting pains in the hands, and the joints of the fingers were enlarged. She could no longer button her clothing. This was supposed to be "rheumatic gout," but it soon became evident that the entire hand was growing larger. The size of gloves increased from No. 6 $\frac{1}{4}$ to No. 8 $\frac{1}{4}$. The feet were increasing in size at the same time, and No 5 shoes were required instead of No. 3, which was formerly the proper size.

When about thirty-two years of age vision began to fail in the right eye, and this eye has since become totally blind. One half of the field was lost before the other. On first telling of this the patient was very positive that the right (temporal) half of the field was the first to disappear, indicating with her hand the blind and the good sides as she recalled how things appeared to that eye. Afterward she was not so sure as to which side first grew dark, but I believe her first account to be correct. The left eye, which now shows distinct temporal hemianopsia, was not noticeably defective until March, 1892. Whether its temporal field disappeared before or after the loss of the nasal field of the right eye can not be ascertained from the history. Soon after the defect in vision was first noticed there began to be a roaring in the ears, synchronous with the pulse, which has persisted, more or less, ever since.

When she was thirty-five years old the gums began to recede from the teeth. Three years later, on account of pain in the jaws, fifteen teeth were extracted. Only two were left, and as the pain continued these were also extracted, but without benefit. It was now apparent that the lower jaw projected beyond the upper one.

For the past five or six years there have been attacks of palpitation of the heart with dyspnoea; of late they have somewhat abated. At times there has been very profuse sweating.

Condition, May, 1893. The patient is five feet five

inches in height, and weighs one hundred and forty pounds. Her general appearance is very striking, suggesting acromegaly at the first glance. The face is long and massive. The eye-balls are prominent and the lids large and puffy. The nose is very long and its lower part much enlarged. The lips are thick, with the aper-



ture of the mouth wide, while the lower jaw is much too long for the upper.

The hands, while not much elongated, are decidedly thicker and broader than normal, the fingers having the characteristic "sausage shape." The feet are also

broad and thick, but not so large, in proportion, as the hands.

The neck is somewhat bent forward. The larynx is not prominent. The thyroid gland can barely be felt; it seems smaller than normal. Speech is slow and drawling, with the voice rather high pitched.

The clavicles at their sternal ends are enlarged. The scapulæ show nothing abnormal. The sternum is long and broad; its manubrium appears to be dislocated backward. The pelvis, judging from external measurements, is flattened in its antero-posterior diameter, but is otherwise normal. There is no marked abnormality of the lower limbs except the size of the feet.

The skin and nails are normal. Sweating was formerly very profuse, but is not so now. The hair of the head is abundant, and has grown thicker during the progress of the disease; on the other hand, hair has almost entirely disappeared from the pubes and axillæ. There are no glandular enlargements.

The pulse ranges from seventy to ninety-six; it is regular though small. The first heart sound is soft; otherwise the sounds are normal. Cardiac percussion dullness is normal, and there is no dullness over the sternum. The temperature, taken on two occasions, was 97.8° F. There are periods of excessive thirst. Appetite and digestion are good except for obstinate constipation. Judging by percussion dullness, the liver is small while the spleen is of normal size.

The urine contains no albumen or sugar.

Muscular power is diminished in the lower limbs generally; in the arms it is fair considering the general condition. There is no facial paralysis, and the tongue, which is very large, is protruded in the median line. The plantar reflex is present, and the knee-jerk and Achilles-jerk exaggerated on both sides. There is slight but distinct ankle-clonus on the left side and a trace of clonus on the right.

Sensibility to touch, pain and temperature is retained throughout the body. There is an excessive sensibility to cold, and the patient complains of coldness of the ears. Taste and smell are good. Hearing is nearly normal, though slightly impaired in the right ear. Tinnitus is annoying.

The right eye is totally blind. Vision in the left is so impaired that the patient can no longer read, although she can see enough to avoid objects in moving about the

room. The outer side of the visual field is blind, the line of demarcation between it and the inner side being sharply defined.

The pupils are equal, and both react to light falling on the left eye. There is no paralysis of the extra-ocular muscles, but the right eye wanders out from lack of fixation. The left optic disk is in a condition of advanced atrophy; the right disk is still more atrophic, the largest vessels being mere threads. There is lachrymation during the attacks of pain back of the eyes. The lids are puffed but not oedematous.

The mental condition appears somewhat dulled, and the patient is at times rather irritable; but there is no marked defect of memory, and, on the whole, she bears her pain and faces the hopelessness of her miserable situation remarkably well.

MEASUREMENTS.

Skull: Circumference, 58 cm.; binauricular arc, 37.8 cm.; naso occipital arc, 36.5 cm.; naso-bregmatic arc, 14.3 cm.; antero-posterior diameter, 19.5 cm.; transverse diameter, 14.8 cm.; cephalic index, 75.9 cm.; glabella to chin, 14 cm.; glabella to margin of hair, 7 cm.; upper incisors to occipital protuberance, 19.5 cm.; upper incisors to bregma, 20.2 cm.; bregma to occipital protuberance, 16.8 cm.; empirical height of cranium, 15.5 cm.; length of nose, 6 cm.; width of mouth, 6 cm.; alveolar border of lower jaw to tip of chin, 3.6 cm.; temporo-maxillary articulation to tip of chin, 13.6 cm.; angle of jaw to tip of chin, 11 cm.; between angles of jaw, 10.6 cm.;

Limbs, right side: Acromion to olecranon, 29 cm.; olecranon to styloid of ulna, 25.5 cm.; around condyles of humerus, 21 cm.; around wrist, 18 cm.; around metacarpophalangeal articulations, 21.2 cm.; end of radius to tip of middle finger, 18 cm.; breadth of hand, 9.6 cm.; circumference of arm, 25 cm.; circumference of forearm, 21.5 cm.; crest of ilium to head of fibula, 56.5 cm.; head of fibula to external malleolus, 36 cm.; circumference of thigh, 42 cm.; circumference of knee, 35.5 cm.; patella, 7 x 7 cm.; circumference of calf, 27 cm.; around malleoli, 22.8 cm.; around heel and instep, 30 cm.; around metatarsophalangeal joints, 23.5 cm.; length of foot, 24 cm.; width of foot, 8.8 cm.; length of great toe, 7 cm.

The left limbs are slightly smaller than the right.

Trunk: Circumference of chest on deep expiration,

79 cm.; circumference of chest on full inspiration, 86.5 cm.; length of sternum, 18 cm.; circumference of neck, 35 cm.; between iliac crests, 29 cm.; between iliac spines, 26.7 cm.; external conjugate of pelvis, 17 cm.

Although the patient was able to come to my office on the day of her arrival in Denver, the necessary effort, following her journey, exhausted her very much and she afterward remained in her room, most of the time in bed, until she returned home at the end of a month. The treatment consisted in the administration of codeine, cannabis and acetanilid, with an occasional injection of morphia, to relieve the severe pain in the head. One evening there was a very rapid failure of what vision remained, so that in a few minutes she was almost totally blind. The ophthalmoscope showed no change in the vessels or nerve-head, and by the next day vision was restored to about what it had been before.

In June, 1893, she returned to her home in a distant town. In September, her husband reported profuse sweating and loss of control of the bladder, but with less pain. At this time, following the example of Putnam,² thyreoid extract was ordered, but it was too late to fairly test any remedy. In October, pain was again very severe in the head and lower limbs; she could no longer stand and there was no control over the bladder or rectum. Early in November coma gradually came on and ended in death.

I did not know of this termination until it was far too late to make any arrangement for an autopsy.

That this is a genuine case of acromegaly, there can be no question. The gradual enlargement of the hands, feet, nose, jaw and tongue occurs in no other disease. When the patient entered my office, I had just been looking at the pictures of one of Marie's cases of acromegaly, and, as will be readily understood from her photograph, the diagnosis was made in an instant.

Without attempting a thorough discussion of the pathology of the disease, I will call attention to some interesting features of this case.

As in Marie's cases, there is an absence of any apparent hereditary predisposition to the disease. Its duration can be accurately fixed as fourteen years. But this case is interesting mainly because it adds another to the constantly growing list of those which confirm Marie's original belief, that disease of the pituitary body is the cause of acromegaly.

² Transactions of the Association of American Physicians, 1893.

The headache, the optic nerve atrophy with consequent loss of vision, the tinnitus, the paraplegia, and the loss of control of the sphincters, all taken together, can be explained only as the local effects of a growth in the region of the pituitary. Such a growth pressing first on the inner fibres of the optic tracts would cause blindness of the nasal half of each retina, that is of the temporal half of each visual field. It will be remembered that temporal hemianopsia of the right eye was first noticed, and that at the time of examination there was distinct left temporal hemianopsia with complete blindness of the right eye. The loss of the right nasal field was, of course, due to the additional destruction of the outer fibres of the right tract, and a similar destruction of the left tract was evidently going on while the patient was under observation. Such a growth lying between the internal carotid arteries, and pressing on either of them, would cause the rhythmical tinnitus noted. Bilateral pressure on the motor tracts in the crura accounts for the paraplegia and also for the loss of control over the bladder and rectum.

The local diagnosis, then, is clear enough; it is only in regarding the disease of the pituitary body as the cause of the characteristic trophic changes in the limbs and face, that one may be accused of going beyond the evidence.

Here it should be noted that any antecedent improbability of disease of an organ apparently so insignificant causing such widespread disturbance has been removed by the abundant proof that destruction of the thyroid gland does cause myxœdema. Not only is the clinical resemblance between these diseases so close that acromegaly has been described as myxœdema, but there is also an obvious pathological relation, which should lead us to expect a similarity of causes.

The resemblance between the pituitary body and the thyroid gland is also exceedingly close. Measured by their long line of descent, both are most aristocratic organs. The mammalian kidney, for example, is but a new-comer in comparison. The most primitive vertebrates known have the beginnings of the thyroid and pituitary; and in an animal as low as the lamprey, without limbs or jaws, these glands are well developed.

The pituitary, like the thyroid, starts as a pouch from the wall of the oral cavity, but, growing dorsal, it has been caught between the ossifying centers at the

base of the skull, and so is included within the cranium. Before its relation to acromegaly gave it an unexpected importance in pathology, its glandular tubules, lined with active epithelium and filled with colloid matter like the thyroid follicles, and its abundant blood-supply led comparative anatomists to the conclusion that it must have some important function.

According to the recent researches of Andriezen,³ it originally poured its secretion into the current of a water-vascular system, which, beginning at the mouth, irrigated the cerebral ventricles and central spinal canal of the earliest vertebrates. The main function of this system must have been respiratory, but the pituitary gland probably furnished some substance necessary for the proper nutrition of the nerve tissue, which it now furnishes directly through the blood and lymph.

Briefly stated, the evidence for the belief that acromegaly is caused by interference with the function of the pituitary body, is as follows: Of eighteen autopsies in supposed cases of acromegaly, the gland was found to be destroyed or diseased in fifteen,⁴ while in a very large proportion of other cases there are localizing symptoms distinctly showing that it is involved. Those who do not accept this theory regard the frequent involvement of the pituitary as simply one of the consequences of the disease. They claim, in the first place, that the gland has been found to be normal in genuine acromegaly.

This claim is supported in three of the autopsies mentioned, and in two of the cases the eminence of the reporters gives especial weight to their evidence. The first is that of one of the Hagner brothers, studied during life by Friedreich and Erb, and after death by Arnold, in which both pituitary and thyroid were normal. This case commonly passes as one of acromegaly, and Marie, who first described and named the disease, originally regarded it as one. Nevertheless, after learning all the facts of the case, Marie⁵ is decidedly of the opinion

³ *British Medical Journal*, January 13, 1894.

⁴ The cases in which the pituitary body was found to be destroyed or diseased are those of Brigidi, Henrot, Thomson, Klebs, Broca, Holsti, Bury, Gonzalez-Capeda, Caton and Paul, Marie and Marinesco, Duchesneau, Gautier, Dana, Squance, and Bonardi. It was normal in the cases of Frauetzel, Friedreich, and Erb, and Jarbo. See Osborne, *Ref. Handbook of the Med. Sciences*, supplement, 1893, also Collins, *JOURNAL OF NERVOUS AND MENTAL DISEASE*, Dec., 1892, Jan. and Feb., 1893.

⁵ *Brain*, July, 1889.

that it is not one of genuine acromegaly, because the jaw, nose, lips, tongue and xiphoid process were not enlarged, the neck was slender, the kyphosis was lumbo-dorsal, instead of cervico-dorsal, and the enlarged extremities were not of the shape characteristic of acromegaly. The second case is that of the patient Mennig, studied during life by Fraentzel, and after death by Virchow. Here the pituitary was normal, except for a slight enlargement scarcely worth mentioning, and the thyroid was also normal. Marie, however, in his paper in *Brain*, July, 1889, said that this case was probably not one of acromegaly, and he and his followers now class both this and the Hagner case as examples of the disease which he has discovered and called hyperthrophic osteo-arthritis of pulmonary origin.

A third case in which pituitary and thyroid were normal has been reported by Sarbo.⁴ Here there was no history, but the patient was both tubercular and syphilitic. The jaw, nose and lips do not appear to have been enlarged; the face was broad, not long. The ears were large, the skull was thickened, and the hands and feet were enormous. A true osteitis was found. As far as can be judged from the only description of this case accessible to me, it was not one of acromegaly; the features are rather those of hypertrophic osteo-arthritis, of pulmonary origin.

It seems, then, that the pituitary body has not been found normal in any case of undoubted acromegaly that has so far been published.

Still, it is said that destruction of the pituitary body by tumors does not cause acromegaly.

Here it should be noted that extreme care would in any case be necessary to determine whether so small an organ were completely destroyed.

A very minute portion of the thyroid, if left by operation or disease, will prevent the development of myxœdema, and a proportionate amount of the pituitary might easily escape detection. Dercum's⁵ citation of Weir Mitchell's⁶ case, in which an aneurism apparently destroyed everything in the region of the pituitary, seems open to this objection. There is nothing in the notes of the autopsy to show that remnants of the pituitary

⁴ Abstracted by Joseph Collins, *JOURNAL OF NERVOUS AND MENTAL DISEASE*, January, 1893.

⁵ *American Journal of the Medical Sciences*, March, 1893

⁶ *JOURNAL OF NERVOUS AND MENTAL DISEASE*, Jan. 1889.

were sought, or that acromegaly was thought of at that time.

Moreover, it is not true that tumors of the pituitary body never cause acromegaly. In Henrot's case there was a pituitary tumor of some kind. In Bury's case there was a glioma excavating the sella turcica, and a similar growth was found in Caton's case recently reported. Now, a glioma cannot be regarded as an effect of acromegaly, nor can these cases be readily disposed of as coincidences. Under all the circumstances it seems rational to regard the destruction of the pituitary body as the cause of the trophic symptoms.

It does not follow, however, that destruction of the pituitary must always cause acromegaly. Extirpation of the thyroid causes increased growth of the pituitary,⁹ and in several cases of disease of the thyroid associated with myxœdema cretinism the pituitary has been found enlarged.¹⁰ Conversely, Vassale and Sacchi claim to have shown that the thyroid enlarges after removal of the pituitary.¹¹ If these kindred glands are so co-related that one may assist the other, additional work on the part of the thyroid might well be sufficient to prevent acromegaly in one case and not in another. The frequency of thyroid disease in acromegaly, and the fact that Putnam has obtained marked improvement in such cases from thyroid extract, give support to this hypothesis.

It appears, at present, that the most hopeful treatment of acromegaly is the administration of pituitary bodies from the lower animals. I am very sorry it was not tried in the case here reported.

⁹ Rogowitsch, *Arch. d. Phys.*, 1888, ii, 433; *Beitr. z. Path. Anat.*, Ziegler, 1888, iv.; Stieda. *Dissertation*, Koenigsberg, both cited by Putnam, *Trans. Assoc. American Physicians*, 1893.

¹⁰ Hofmeister, *Fortschritte d. Medicin*, 1892, cited by Putnam l. c.; Collins, *JOURNAL OF NERVOUS AND MENTAL DISEASE*, Feb. 1893.

¹¹ Putnam, l. c.

AN ANOMALOUS CASE OF APHASIA.

By L. PIERCE CLARK, M.D.,
Middletown, Conn.

S.—Age 33. An Englishman of the lower class and a butcher by trade. His family history was good. Physical examination revealed no organic visceral disease. He had never been sick before the present attack. The patient was right-handed.

On July 10, 1892, while he was standing on a short step-ladder washing a hearse, he reached out too far, lost his balance and fell to the asphalt pavement—a distance of some six feet, striking the ground on the superior curved line of the occipital bone about one and one-half inches to the left of the median line. No wound was inflicted by this fall and the slight contusion and swelling entirely disappeared in two days. He was unconscious for three or four minutes after the fall, but on recovering, walked home—a distance of five blocks. The patient was questioned closely on several different occasions in regard to dizziness or faintness, etc., to ascertain if possible any facts which might tend to solve the problem of the cause of his falling other than the one given above, but none were obtained and I do not doubt but that it occurred as he said. For seven days after this fall he remained well and was able to be about his work as usual, but on the morning of the eighth day after the fall, on waking he was unable to speak a word. Aside from this he was all right.

He did not go to work, and on the second day, finding himself no better, he went to Bellevue Hospital of his own accord. After a few days stay there he became somewhat dizzy, confused and wandered about in an aimless manner. He was, therefore, sent to the insane asylum, Ward's Island, where he quickly recovered from his confused state and in a few weeks was able to do some work about the building. His aphasia, which had been complete, began to improve slowly at the end of three or four months. He was then able to say "Yes" "No," "Home," "Wife," and on October 1, 1893, when put through the different tests of aphasia, it was found that he could readily name some objects after one, while

other words equally as simple, he could repeat only after several trials, and still others he could not pronounce, nor could he write these simple words from dictation, but could copy most all the words of five or six letters. This he did by going very slowly as if drawing a figure. His sight and hearing were intact.

While his aphasia seemed to be of the motor type, yet all forms were more or less associated, especially amnesic and alexic aphasia. He could think of and pronounce nouns and substantives, but could not describe their action or use. He was much more able to recall words than to pronounce them. He could understand perfectly what was spoken to him as shown by his ready action to do things asked of him. At times by concentration of attention he could formulate difficult sentences, and at other times he could put no words together sufficiently coherent to make sense. Occasionally after a line of thought would be started, he would stop and try to speak of another subject, but the first topic would be strangely mixed with the second. For instance, while speaking of carrying water for the horses in the stables, he attempted to speak of his work in the kitchen, and the following sentence was the result: "Standing in ditchen (kitchen) fixing water for horses." Whenever possible he would use the particle for the verb.

Generally, when asked about the name of some familiar object about the room, he would say, "I can think—and know it—but—I cannot."

His education had been imperfect and his vocabulary was necessarily very limited. It was, therefore, difficult to tell just how much amnesic aphasia there was. He cultivated a very ingenious way of avoiding a word he was unable to pronounce. The following is an illustration. After making several vain attempts to pronounce "rat," he finally said in an explosive manner, "Cat fixes them."

His agraphia showed itself in his inability to write words which he was able to read readily, and also those words which he was in the habit of writing every day in the shop, prior to his sickness. It was thought that he might be able to learn some of the simpler words that he had forgotten, or, at least, "re-educate" the centre on the right side, and he was, therefore, given systematic word-lessons in English, but he soon acquired the habit of trying to remember the word as it was spoken to him, and gave no attention to the printed word or the accom-

panying picture, which habit he could not be induced to give up and his material progress in acquiring a new vocabulary ceased. He could not select a given letter of the alphabet if placed in a group of more than three or four others.

All the facts in the case regarding previous education, business ability and general symptoms of the patient's attack prior to his detention in the asylum, were verified by his wife and mother, who visited him frequently.

Since his arrival at the asylum he had four seizures about four months apart. The nature of the first three was not accurately recorded, a physician not being present, but the fourth one was witnessed by several physicians.

The patient fell suddenly without premonition while going from the ward to the water closet. Then followed a general convulsive movement. The pulse was 120 small and tense; while the respirations were 24 per minute, regular and rythmical. His heart was tumultuous in its action, and once or twice hesitated in systole. The pupils were normal and responded to light. Occasionally he groaned and moved his head from side to side. There was no cry in the beginning, foaming at the mouth or stertorous breathing, and he responded to pin-prick throughout the attack, which lasted ten minutes. In one-half hour, the patient was apparently none the worse for the seizure and was up walking about, showing no mental dullness and no change from his condition prior to the convulsions. The orderly informed me that this attack was similar to the other three in its onset, course and termination. This one resembled in some respects an epileptic seizure. For the last year I cannot say that the patient has made any material improvement nor has he apparently grown worse.

This case seems to me to be not only one of interest, because of the varied symptoms presented in his aphasia, but also from the probable or possible cause of the disease and the lesion now existing in the brain.

Several explanations have been suggested as to the lesion present causing the aphasia. One reason was, a slight but continuous oozing hemorrhage in Broca's convolution which was not sufficient to produce any disturbance of motion or sensation until the eighth day.

It seems to me that this reason is extremely theoretical. Even supposing this hemorrhage to be as small

and gentle in its onset as imagined, it would not account for all the different forms of aphasia present, which according to present authorities have their foci in different regions, and, a hemorrhage covering that area would be quite sure to produce other motor disturbance aside from the simple aphasia. If this reason is accepted, the result we should expect would be absorption and improvement in a short time, which was not the case; or, it might result in sclerosis and contraction of brain tissues; and again, it might result in cerebral softening and disintegration; but either one of these latter lesions would give us steady retrograde symptoms, which again is not borne out by the clinical history of about two years with little improvement.

Another solution given us is that the fall and its apparent cause of the condition present were purely accidental, and that the patient was suffering from a cerebral tumor, the seizure pointing directly to its pressure and periodical irritation.

It seems to me that this might be dismissed with the remark that no other local or general symptoms indicative of tumor were present except the seizures.

And still another cause advanced was that of embolism or thrombosis, and that the capillary walls became so degenerated by the injury that they furnished a ready condition of plugging. After this embolus and thrombus had shut off the blood supply and the resulting softening was thought to be a sufficient cause of the convulsions and his present aphasia. But why he does not continue to grow better or worse, those who advanced this theory do not attempt to explain. He had no heart lesion or arterial change.

I myself have no explanation to offer in the case either as to the lesion in the beginning or the present one, save that the theory of embolus and softening, seems to me to be the more possible of those given in the report of the case. I think, however, we should bear in mind that the lesion of embolus or thrombus and its sequela softening, not only affects the immediate tissues at the seat of the lesion, but also the surrounding cortical centres; and these disturbances of outlying areas, in a measure like the umbra and penumbra of a picture, may grow lighter or darker according to the severity of the original focus of disease, until these centres either recover their former functions or lose them entirely.

INFANTILE AMYOTROPHIC LATERAL SCLEROSIS OF THE FAMILY TYPE.¹

By CHARLES HENRY BROWN, M.D.,

New York City.

AT the April meeting of the New York Neurological Society, I presented a case for discussion as to its diagnosis and classification. It seemed to call out opinions more or less at variance. I have been persuaded to present the case more at length before this Association. I do so, in the hope that my study of the case and the added opinions of the members may aid in the better understanding and differentiation of a class of trophic disease in children. I believe that my case opens up a new type of cases for study and that it is a sign post not to be overlooked. Infantile amyotrophic lateral sclerosis of the family type heretofore has not been recognized, as far as I have been able to ascertain.

History—Boy, A. K., aged fifteen, of German parents, fifty-eight inches in height and weighs clothed seventy-one pounds. Family history reveals nothing of importance; the early history is meagre, on account of the stupidity and ignorance of the parents, and to the fact of the inability of the boy to hear well, and to articulate distinctly and also to the fact that, the child was raised in a charitable institution which refuses to send me information in relation to him.

About three years ago the very first symptoms were noted by the boy, which were the inability to whistle or to talk plainly. The onset was rather rapid and grew more pronounced every day so that in a week he could not freely move his tongue, whistle or swallow without an effort.

He soon was unable to laugh or entirely close his eyes. He grew hard of hearing and on the least exer-

¹ Read before the American Neurological Association, Washington, May 31, 1894.

tion he had difficulty in breathing. Soon after this, perhaps a week or two, he found it very difficult to button or unbutton his clothes, write or carry as heavy weights as formerly. He grew thin rapidly and felt twitchings of the muscles of the face, neck, and even all over the body from the beginning.



FIG. 1.

Status-presens.—As observed by the photograph (No 1) he presents an exceedingly emaciated boy, more markedly so, however, in the upper parts of the body.

Subjective symptoms are the same as stated in his history. He especially complains of the fact that he cannot laugh, swallow well or run.

Objective symptoms.—There is marked paralysis and atrophy of all the facial muscles excepting those of mastication. The lower facial atrophy is more marked than

the upper, the eyes do not but partially close and the face is devoid entirely of expression.

The mouth protrudes, the lips are prominent and the angles are depressed and contracted. It presents the typical "tapir mouth." The inability to move the lips but to just a perceptible extent shows that still some



FIG. 2.

fasciculi of the muscles remain. Photograph No. 2 shows that there is a marked atrophy of the tongue on both sides, and also shows the extent he is able to protrude it.

The neck in front is very much emaciated, and the os-hyoid is loosely suspended above a mishapen larynx whose various cartilages are freely moveable one against the other. The intrinsic throat muscles are all extremely paralyzed and atrophied, and more extensively than in any case I have ever seen.

Articulation is difficult, barely intelligible and strongly nasal; it is without variation whatever in tone.

Laryngoscopic examination.—The pharynx reveals two enlarged tonsils, a narrowed opening, the pharyngeal muscles thin but acutely active, sensation may be somewhat blunted, but the pharyngeal reflex is acute.

Closure of glottis is fair, examination of the larynx difficult, laryngeal bands relaxed, no action whatever muscularly in attempts at phonation. The sterno-cleido mastoid of the left side is atrophied to a greater extent than that of the right, both are less paralyzed and atrophied proportionately than the other front muscles of the neck.

The omo-hyoid is more prominent than any of the other muscles of the throat. The platysma myoides stand out in spastic thread like bundles when the neck is stretched by various movements of the head to the left or right.

The posterior muscles of the neck are strong and the humeral scapuli muscles firm, and when the boy is lifted by the arms the Erb symptom is not noted.

The intercostal muscles seem to be all weak. Expansion, except by a great effort, hardly exceeds one-half an inch and the diaphragm does not seem to possess very much power.

Breathing is extremely shallow, hardly a perceptible movement of the chest walls, occasionally there is a raising of the shoulders and with head thrown back an extra full inspiration is obtained, to be quickly followed by a collapsing explosive expiration.

There is no question of the serious involvement of all the intrinsic muscles of respiration to more or less degree. The heart with the exception of occasional variation in rhythm accomplishes its work fairly well.

The digestive processes are somewhat weakened, pain and colic frequent. He is potbellied and physical signs suggest a dilated stomach.

The boy passes enormous quantities of urine and complains of constant thirst; urine analysis shows only a low specific gravity.

There is apparent paresis and atrophy of most of the arm muscles, but not so marked as to be seen in the hand muscles, especially the interossei and thenar group; adduction of thumb impaired.

Examination of the eyes reveals nothing of importance, except the inability to close the lids completely;

winking is fairly rapid ; slight esophoria of two degrees present.

Dr. John L. Adams reported that the deafness noticed in the case was due to impairment in the function of the eighth nerve. On careful testing the ærial conduction of sound is more acute than the bone conduction, otherwise on careful examination the ears appear normal.

The electrical reactions show these facts that most all the muscles of the face, throat and upper extremities respond in part. In the intrinsic muscles of the throat it was difficult to decide, but many muscles must be beyond excitation in part, otherwise there is no marked degenerative reactions.

Fibrillary twitchings are observable all over the body and easily excited and intensified by cold and tapping.

Superficial and deep reflexes are very much brighter than normal throughout the body. The right ankle-clonus can be obtained quite constantly, the left occasionally.

There are many retracted tendons noticed ; for instance, the flexor tendons, such as the biceps and tendo—Achilles are taut, and stand out too prominently, and a special effort is necessary to extend the limbs fully.

The patient in full extension of a limb feels the stretching of the flexors. The extension is uncomfortable.

He walks with a slight spring-halt sort of gait, and his shoes show they are not much worn at the heel. There is a double lateral curvature of the spine, and the boy stoops very much, and especially in walking.

Sensory symptoms.—The eighth nerve impairment is the only one noted. Temperature sense.—Normal Vasomotor symptoms.—Face always pale, hands cold and damp and are constantly of a mottled reddish hue. Feet always cold.

Mentally, the boy is fairly bright, reads, writes (with difficulty), and is good natured. Cries and is amused at trifles. He is microcephalic. He acts and looks about ten years old. Evident general arrested development.

This completes the picture of a rare case, and for the better ease in the consideration of its classification, I will present a concise resumé of the principal features.

A boy of twelve is taken ill, gradually with all the

symptoms of a labio-glosso laryngeal paralysis. This extends more or less rapidly to upper facial parts, one sensory nerve and proceeds down the body, implicating profoundly the muscles of respiration and markedly those of the upper extremities. There is marked atrophy, in facial, tongue, throat, respiratory muscles, and those of the hand and arm. There is a general arrest of development and general emaciation.

Fibrillary twitchings, exaggerations of the reflexes and retraction of tendons complete the necessary resumé.

Glosso-labio-laryngeal paralysis is a disease confined to adult life. Most writers affirm that it never occurs in childhood. Progressive infantile bulbar paralysis of the family type, however, is a fact.

Hoffman reported a case in 1891.

Remak reported a case in 1892.

Fazio reported a case in 1893.

Bernhardt reported three cases in 1889.

Londe reported two cases, in brothers, in 1893.

They all bear resemblance to my case in the fact of the implication of the bulb and differ in most of them in the non-extension of the degeneration to the cord or the implication of the pyramidal tracts. Charcot, Joffroy and Marie are presumably not wrong in their showing that the large ganglion cells of the anterior horns and the pyramidal tracts can be simultaneously affected, or one be grafted on the other. We probably all accept amyotrophic lateral sclerosis as a distinctive clinical classification from progressive poliomyelitis and, in lieu of a better pathological knowledge, that amyotrophic lateral sclerosis may consist of a lesion of the cortico-muscular tract, traceable from ganglionic cells of the central convolution and bulb to the end of the cord, and *vice versa*.

According to Marie, amyotrophic lateral sclerosis is a muscular atrophy with extremely well-marked fibrillary contractions; the latter may exist before the atrophy is marked. This is seen in our case. Accord-

ing to this author, the disease does not occur in youth or childhood.

The muscular atrophy, again, is gradual muscle by muscle, fasciculus by fasciculus, fibre by fibre.

Lower limbs are affected very late. Electric reactions vary. Degeneration may be present if muscles are completely implicated. The reactions are, however, never well-marked, and often absent.

According to this author the resumé of symptoms are as follows:

Age, paralysis, atrophies, contractures, retraction of tendons, exaggeration of reflexes, fibrillary twitchings. Marked spasticity is not positively essential, but the exaggeration of reflexes of both upper and lower extremities is necessary. Early psychic disturbances are frequent and must be considered essential. A lessened intellect, childishness and especial proneness to weeping and laughter, steadily progressive and death most frequently by respiratory troubles.

The age in my case precludes its classification among the ordinary ones of amyotrophic lateral sclerosis. The case as well has not taken the usually progressive course; it progressed rapidly up to six months ago, since which time it has been more or less in *statu quo*.

In all other respects the resumé of symptoms is alike. I consider the case, however, as one of the family type of infantile progressive bulbar paralysis, plus the same implication that we find engrafted upon the progressive poliomyelitis of adults which gives us amyotrophic lateral sclerosis. My case certainly presents more extensive clinical features than the cases on record of progressive infantile bulbar paralysis, and it is just as logical to affirm amyotrophic lateral sclerosis as in the adult cases.

To classify the case as a dystrophy, especially in the class of either scapulo-humeral or facio-scapulo-humeral dystrophies, is out of the question. The very fact that, although emaciated and weak, yet the scapulo-humeral group of muscles and the back muscles gener-

ally are the best ones he has, what muscles he possesses are active, the exaggeration of reflexes, the fibrillary twitchings and the retraction of tendons, though slight, precludes peripheral origin.

To argue on any electrical reactions is illogical, for as long as a muscle fibre is in healthful contact with its trophic centre a reply will be obtained by the faradic current. On an entire loss or entire implication by disease of trophic influence only, can one depend upon obtaining marked degenerative reactions. Electrical reactions are certainly very unsatisfactory in all forms of partial muscular atrophies, and to study them aright is a most laborious, tedious and unsatisfactory task.

In muscular myopathies the respiration is unaffected. The upper facial muscles are usually intact, and the "tapir" mouth is not observed. When atrophy takes place it is more irregular and apt to be more bilateral, that is, worse on one side.

It is becoming more and more the belief that amyotrophic lateral sclerosis originally emanates from the bulb. This is seen in the reports of cases and in the writings upon the subject. Authors unconsciously bring out the facts that even though the paralysis and atrophy may first be noticed in the hand, often important symptoms precede these, and throat, and tongue and lip symptoms are often primarily noted.

Senator has lately reported an autopsy where the pathological findings show that the pyramidal tracts were intact.

Londe has considered the question of infantile bulbar paralysis at length, draws attention to the inability to wink and the sluggish opening of the lids as a diagnostic feature. Remak draws attention to this clinical feature as well, in the report of his case.

Though in my case the ability to wink was preserved, there was an inability to close the eyes. All the other superior histrionic muscles were affected.

In adult bulbar paralysis the upper facial muscles are rarely affected and more extensive paralysis occurs down-

ward. In most all the cases of infantile bulbar paralysis reported, the neck muscles or below were not involved, never the arms or legs, except in one case on record of this type, and this seems to more nearly agree in most of its clinical features to my case.

Hoffman's case, boy of eleven years.—There was marked glosso-labio-laryngeal paralysis and atrophy with great emaciation of upper extremities and body and extending down to below hips. Exaggerated reflexes in lower extremities and lessened in the upper extremities. In this case the atrophy was too extreme probably in the upper extremities to illicit much response. In all the cases reported respiration was greatly impaired. The case I present differs from them all in the extent of its atrophy, general fibrillary twitchings, brightened reflexes and retracted tendons. None show a more general nuclea affection. The affection of the auditory nerve is not noted in other cases. This case, however, deserves to stand apart, though linked to this class of cases, as amyotrophic lateral sclerosis is in the adult linked with progressive muscular atrophy and nuclea disease of the bulb.

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Neuritis with Tabetic Symptoms Due to Mercurial Poisoning.—In *Médecine Moderne*, July 5, 1893, a letter from Berlin gives an interesting account, reported by Leyden, of a man, twenty-five years of age, who presented grave symptoms of locomotor ataxia. Mercurial inunctions had been used earlier for recent syphilis. Three days after the cessation of this treatment the patient began to have pains in the arms, then in the lower limbs, together with difficulty in walking and diminished sensibility. When first seen, there was no evidence of syphilis, though there were many signs of ataxia, as lancinating pains, loss of tendon reflex, characteristic gait, etc. In a few weeks the patient's condition was much improved and the tendon reflexes reappeared. The treatment consisted in small doses of iodide of potassium, in rest, careful and abundant feeding, with antipyrin for pain, and in the administration, when necessary, of chloral and morphine. The earlier existence of syphilis naturally suggests a specific ataxia. But a most painstaking examination of the case revealed the existence of a neuritis with tabetic symptoms, such as Leyden and Déjerine have already described under the name of acute ataxia.

L. F. B.

Primitive Progressive Myopathy.—Rovighi and V. Levi, in *Rivista Sper di Freniatria*, xvii., 4. p. 492, records three cases of primitive progressive myopathy. There were violent cramps in the calves and lower limbs generally. The authors ask if there may not be some direct relation between primitive progressive myopathy and Thomsen's disease, which is also hereditary.

L. F. B.

REPORT OF A CASE OF ACROMEGALY.¹

By DR. RALPH L. PARSONS.

A. B., the subject of this report, was born in 1858, is a native of Westchester County and has always resided in that county.

His father died at the age of eighty years. He was always a healthy man. His mother died at the age of sixty-two, of some disease of the kidneys. He has three brothers, one sister and two half-sisters. All of these are healthy people. No hereditary predisposition has been discovered.

During the first twenty years of his life the patient's health was uniformly good, with the exception of diseases peculiar to childhood, from which he recovered without sequelæ.

Eighteen years ago, while residing on a farm in the country, he had an attack of ague and fever, but there has been no recurrence of malarial symptoms since that occasion. He knows of no other cause that may have injured his health, unless he may have been overheated on one or more occasions about ten years ago while walking in the country. Has not been exposed to severe cold.

During his boyhood he lived on a farm, was then employed in a store, and for the past ten years has been employed as professional nurse.

Says he does not remember ever to have had sexual desire, although he did practice self-abuse when a boy. On rare occasions has erections at night, but for the past ten years is quite certain that he has had no sexual desire.

Has never had venereal disease. Has never used alcoholic stimulants.

Ten years ago he was told that he stooped and carried his head to one side. Eight years ago he began to suffer from a pain, or as he would rather characterize it, a distress in the back of his head. At first this occurred, for the most part, at night, and not oftener

¹ Read before the New York Neurological Society, January 2, 1894.

than once a week. The distress seemed to be within the head. He would awake with a sensation of distress and of being dazed, would rise, bathe his forehead and back of his head with cold water, get relief, and then sleep comfortably for the remainder of the night. This symptom increased in severity and frequency, and has continued until the present time, save as will be stated later on. Does not know of any cause for these headaches. He was occasionally constipated, but does not think he was especially constipated at the time of the occurrence of these headaches. Subsequently, they occurred by day more than at night. Latterly, they have continued, much of the time, during the forenoon, and have often been excruciating, almost unbearable in character. The distress, or pain, was usually most severe at the occiput, but would involve the left parietal and frontal regions. The right side of the head was unaffected.

About six years ago his attention was called to the large size of his hands. He then for the first time perceived that his hands were of extraordinary size. Does not know for how long a time this undue increase in the size of his hands had been taking place. He had never been in the habit of wearing gloves. Does not think that he now wears larger shoes than he did ten years ago. Cannot say whether or not there has been an increase during the past six years.

An examination of the patient was made on the 21st of October last and his physical condition and the objective and subjective signs and symptoms of disease were found to be as follows, to wit: Weight, two hundred and twenty-seven (227) pounds; heart and lungs seem to be sound, but for some time past the patient has had shortness of breath when climbing a hill or walking rapidly; temperature normal; after sitting quietly for an hour his pulsations were found to be from one hundred to one hundred and five per minute; appetite good, perhaps excessive; urine not examined, but there seemed to be some degree of polyuria.

Head.—Hair rather coarse, but natural in condition. Scalp healthy and free from dandruff. Left ear slightly thickened. Meatus of each ear normal; forehead retreating; superciliary ridges quite prominent; no exophthalmos; malar bones rather prominent; cheeks appear rather sunken; nose rather broad and full at the nostrils; lips normal; tongue decidedly enlarged, obstructing free articulation as though a foreign substance were

in the mouth; patient has himself observed this for the past two years; alveolar processes normal; teeth not separated; chin elongated, especially on the right side; head inclined strongly and habitually to the left side and forwards; patient says that he has carried his head in this way for the past ten years, and that he has a feeling of discomfort which is allied to pain when he does not hold his head in this position.

Upper Extremities.—The hands are large and spade-like, the right hand being decidedly the larger; fingers large and sausage-like, but the extremities are decidedly smaller than the middle phalanges; the soft tissues of the hands and fingers are firm, full and resilient, without pitting on pressure, as though infiltrated by an elastic substance; finger-nails appear small; sulci at the flexures of the hands and fingers rather deep; wrists appear to be rather large; arms normal; shoulder-large, but probably not abnormally so; left shoulder carried much lower than the right. The cubical content of the right hand about three weeks after the first examination was 600 c.c., of the left 603 c.c. The method of estimating the cubical contents of the hands was by means of water displacement, as follows, to wit: A quadrilateral opening was made in a thin board, the opening being large enough to admit the hand, one end of the opening being large enough to admit the turning of the wrist quite around and the other end too narrow to admit of such turning of the wrist. This piece of board was placed firmly on the wrist, as a clamp, by crowding the wrist far enough towards the narrow end of the opening; and then the hand was immersed into a beaker filled with water as far as the board would permit, the brim of the beaker having been first wetted. After the hand was removed, the displaced water was replaced and the quantity measured.

Thorax.—No abnormality of clavicles, sternum, or ribs noticed; marked kyphosis of the dorsum, with slighter scoliosis towards the left; lordosis slight, if any; heart sounds normal; pulse, on a repeated examination, one hundred; respiratory sounds slightly uneven or jerking.

Pelvis.—No abnormality observed.

Lower Extremities.—The feet are large, but perhaps not larger than in the case of many of his weight; but the tissues at the side of the foot near the heel, have the firm, resilient feel of the soft tissues of the hands.

Skin.—Has perspired very freely for the past ten years; and of late years the perspiration has been decidedly offensive, unless a special care was taken in his ablutions.

Pain.—Mention has already been made of the headaches. Has also suffered pain in the left ear; also in the left eye, especially after reading, or being in the sun. Consulted Dr. Webster two years ago on account of these pains, which it was supposed might have depended upon eye defects. Glasses were prescribed, but afforded no relief. The pains have been gradually becoming worse until quite recently: the headaches having often been excruciating in character and severity. Does not think his eyesight has ever been impaired, apart from the pain caused by use of the eyes.

Sleep.—Disturbed by the pain in the head during the night; but after bathing the head would sleep for the remainder of the night.

Senses.—Normal, save of the sight as mentioned.

Bowels.—Formerly constipated, but regular for the past three months.

Appetite.—Excellent, or excessive.

Thirst.—Excessive.

Mental Status.—Has not suffered from mental depression since a boy, when he was at times depressed in mind. Intellectual processes rather slow, but otherwise normal. Memory unimpaired, save when suffering from headaches.

Treatment.—On the 21st of October last, by advice of Dr. Starr, patient began the use of five drops, thrice daily, of an extract of sheep's thyroids. The medicine was kindly furnished by Dr. Crary. On the 4th of November, the dose was increased one drop; on the 11th of November, to ten drops, and on the 22d of November, to fifteen drops, thrice daily. This dose has been continued until the present date. With the exception of tonic baths, general hygienic measures, and some restrictions in and regulations of the diet, no other treatment has been advised.

Present Condition.—Patient reports that he has been feeling decidedly better since using the thyroid extract; that his sense of well-being in general has improved; that he feels more cheerful; that he has more confidence in himself; that he now sleeps soundly through the night; or, if he awakes, that he does not need to arise on account of pain or heat in the head, as

he formerly did ; that he can now read or write for considerable periods of time without causing pain in the head, or confusion of ideas ; and that his headaches have been relieved to a very great extent, although they have not entirely disappeared. While they formerly occurred every day, especially during the forenoon, and were excruciatingly severe, of late they have been quite bearable in character, and on some days he is altogether free from headache.

He has also improved in appearance and manner, but there seems to be no change in the dimensions of the hands. His weight has increased rather than diminished.

This case is of especial interest as bearing on the question of the usefulness of treatment by means of thyreoid extracts. There can be no doubt that there has been great improvement in the subjective symptoms, but there may yet be a reasonable doubt whether the improvement depends more upon the direct action of the medicine, or upon the mental status induced by the fact that something is being done for the relief of the patient.

NOTE.—August 6, 1894. Under the continued use of the thyreoid extracts, patient has experienced great relief from his headaches, his general condition has improved, and there appears to be a diminution of the acromegaly.

Hysterical Blue Œdema.—In the *Brooklyn Med. Jour.*, April, 1893, Dr. J. E. Shaw reports the very interesting case of a young woman who presented a large group of hysterical symptoms, viz., paralysis with anæsthesia in various portions of the body ; intense hyperæsthesia in a localized area ; localized œdema and well-marked hysterical convulsions and aphonia. The œdema in this case appeared not only in the left upper extremity, but also in the left mammary gland. It was not white, but presented a bluish cyanotic appearance, and the temperature of the parts was lowered. So far as the author knows no case of this nature has been reported where the œdema has been in the breast ; it has always been confined to the extremities. Another interesting point connected with the case was the absence of any disease whatsoever of the pelvic organs. A. F.

A REPORT OF EXAMINATIONS OF THE BLOOD IN FORTY-SIX CASES OF CHRONIC DIS- EASES, WITH TABLE.¹

BY BRADFORD C. LOVELAND, M.D., F.R. M.S.,
Physician at Clifton Springs Sanitarium.

GENTLEMEN :—I have to present to-day a table of results gathered from examination of the blood in about forty-six cases, all of chronic diseases and divided as follows: Addison's disease one, anæmia three, cerebral hyperæmia nine, dyspepsia three, hysteria seven, insomnia three, melancholia seven, neurasthenia seven, rheumatism five.

The name under which I have classed the different cases is that which applied to the most prominent complaint or disorder, though the cases presented often more than one disease so-called, as in the cases of anæmia, for instance, there were serious digestive disturbances. As I shall append the table of examinations to this paper, I will take up the cases group by group, not that we may gather ultimate conclusions, but to give us some food for thought and an incentive to further study and investigation.

The first in my list, Addison's disease, gave me a surprise, as in all the earlier books it is said to be attended with profound anæmia, and by consulting the table you will see that this case shows almost double the normal amount of red corpuscles, and hæmoglobin 135 per cent., or about as much as I could estimate with my instrument. I have seen one writer, Dr. Frederick P. Henry, who said he had found by blood examination that

¹ President's address before the Ontario County Medical Society July 10, 1894.

Addison's disease was not always attended with anæmia, but on the contrary, he had found one case in which the blood showed rather the opposite condition, though he had seen no case whose blood was so concentrated as in the case above reported. I have three cases of anæmia, but two of which were with me long enough for treatment and subsequent examination.

The first began with hæmoglobin forty per cent., red corpuscles 1,700,000 gained about twenty per cent. every three weeks, till after twelve weeks' examination showed hæmoglobin 100 per cent., red corpuscles 5,080,000. Second case when first examined showed hæmoglobin sixty per cent., red corpuscles 1,080,000, when discharged as cured, hæmoglobin 100 per cent., red corpuscles 4,820,000; is still in good health. Case three, fifty-five per cent. hæmoglobin, red corpuscles 3,800,000; there was no subsequent examination. The anæmic cases were not attended with mental depression.

Cerebral hyperæmia, nine cases. By cerebral hyperæmia, I mean a set of cases presenting symptoms somewhat as follows:—Objective: general condition well nourished; patients usually plethoric; face flushed, or, at least, not pale; eyes suffused, and often injected in the morning. Subjective: feeling of pressure in head increased often on lying down, sometimes pain in head or back of neck. Sleep not restful and broken, loss of power to concentrate for any length of time, inability to perform the accustomed mental work. All these cases presented on examination a concentration above the normal, the hæmoglobin varying in the different cases from 114 per cent. to 140 per cent., the corpuscles from 5,760,000 to 8,940,000 to the cubic millimetre.

Four of the nine I was able to watch during the progress of treatment and to re-examine. In all these four the blood was reduced and the symptoms disappeared in the same proportion. In some cases the blood was reduced to normal, in others diet and treatment were not continued long enough.

Of chronic dyspepsia I have examined three, hæmoglobin in one case 100 per cent., in another 105 per cent., and in the third case 120 per cent.; red corpuscles 4,400,000, 5,560,000, and 6,180,000 to the cubic millimetre, respectively. The case with normal blood was not like the others, but of the nervous order the dyspepsia due

to family troubles and nervous excitement. Of the seven cases of hysteria which I examined, all but two showed too great concentration of the blood varying from 115 per cent. to 125 per cent., corpuscles in proportion. The two exceptions were, one case, hæmoglobin ninety-six per cent., a chronic, who boasted of having had twenty-five of the best doctors in New York, and had been very much reduced by a long course of diet before I saw her.

The other, a young girl who was slightly hysterical, but not really an invalid, blood normal, and mentioned here for want of a better class to put her in. The poor circulation and cold hands and feet so generally complained of in these cases was, I think, in part due to a blood too thick to pass easily through the capillaries.

Insomnia.—I have three in this class whose only complaint was that they could not sleep. I do not like the idea of calling this trouble a disease, and do not call it such here, simply using a common term for convenience, all the cases, I believe, should be classed as cerebral hyperæmia. All were suffering from stagnation of the circulation, the blood of each was concentrated from 115 per cent. to 120 per cent., with corpuscles proportionately increased.

Melancholia.—Under this class I have seven cases, in all which the "blues" were very pronounced, though three were different degrees, one or two having strong suicidal tendencies. Hæmoglobin varied in different cases between 115 per cent. and 120 per cent., red corpuscles from 5,160,000 to 6,440,000 to the cubic millimetre. In this class there was also noted a general scantiness of the urine and sometimes of other secretions.

Case I. of this group was sent me by a physician who was treating her as an anæmic patient.

Only two cases remained under observation till they recovered and had the blood re-examined. In these two cases greater fluidity of the blood was proportionate to the improvement under treatment. One of these cases may be worthy of a report. Mrs. D., forty years old, three children, always had good health until she contracted what she called chronic malaria some eight or nine months previous to her consulting me, which was on July 8, 1893. A blood examination was necessary both for my own satisfaction and to convince her that she was not anæmic, as she was taking iron, arsenic and quinine on the prescription of a physician who told her she was anæmic. Said she had a good husband and a

happy home, but she was not happy in it, could not get up any interest in her family or her home, seemed to have lost all interest in everything and was so unaccountably depressed in spirits that it was worse than pain to her.

Blood showed hæmoglobin 118 per cent, red corpuscles 6,440,000. Gave her a five-drop dose of Tr. Nux Vom. after each meal, three quarts of water daily, meat only once a day.

July 27th—Blood examination, hæmoglobin 105 per cent., red corpuscles 5,480,000 to the cubic millimetre. With this change she had so much improved that she went home and resumed her housekeeping, and has remained well, still keeping up the use of a very liberal amount of water and a small amount of meat. This case was not of long standing, but is of interest, as I believe it is a specimen of quite a large class of cases in whom the thick blood and deficient excretion is responsible for a sort of slow poisoning or intoxication.

Of the seven cases of neurasthenia, all showed concentration of the blood greater than the normal, the least being hæmoglobin 105 per cent., the highest 145 per cent. Lowest number of red corpuscles 4,700,000, highest, 8,620,000; only two have had a re-examination of the blood. In those cases, under a treatment mainly dietary, the blood had changed very much toward the normal, also a marked improvement in nervous symptoms. I had one case of peripheral neuritis which had followed pneumonia. In this case there seemed a disproportion between the hæmoglobin and the number of red corpuscles, and a subsequent examination showed a decrease in the hæmoglobin, with an increase in the number of red corpuscles, bringing the relation between the two nearer to what it should be. The cases of rheumatism, five in number, present one of the most interesting classes of cases that I have examined. All were above normal in both hæmoglobin and red corpuscles, the lowest being hæmoglobin 112 per cent., red corpuscles 5,440,000, the highest, hæmoglobin 125 per cent., 7,220,000 red corpuscles. In two cases I was able to follow up the examinations to some extent, one of them till the blood became reduced to normal.

The last case referred to was a most aggravated case of sub-acute articular rheumatism in a woman a little past fifty years of age, who had been previous to, and in

fact, partly during the course of the rheumatism, a sufferer from neurasthenia. The result in her case was very satisfactory in every way. Though she still has some stiff finger-joints, the progress of the disease has been entirely checked for more than a year.

A study of the table will be interesting, bearing in mind the fact, that in each case improvement in the disease has been coincident with a change in the blood toward the normal.

A few general points I wish to bring out. One is, that from my observation, real anæmia is much rarer I think than is generally supposed. Several of the cases which showed too great a proportion of both hæmoglobin and red corpuscles having been sent me by physicians who, without examination, had considered them anæmic. As I have tried to select characteristic cases with the results referred to in the table, I am led to think that a condition of too thick blood, so to speak, is much more common than generally supposed. Again, it is interesting to note that in all the cases I had the opportunity to follow carefully, both anæmia and the reverse, the changes in the blood shown in the table followed a strict directing of the diet and water the patients ingested. The medicines used being very little, only seeking to give relief to digestive or other disturbances. In two or three cases in which there was either acne, boils or abscesses of some kind, I noticed a peculiarly shaped or elliptical corpuscle pointed at both ends, but in other characteristics like the red corpuscles.

It is also interesting to note another fact not distinctly set forth in the table, namely, that while all the cases of melancholia I have examined were overcharged with both hæmoglobin and red corpuscles, none of the cases of anæmia have been specially marked by depression of spirits.

I might theorize as to whether the condition of the blood in these cases was a cause, or merely a concomitant of the various diseases. In some cases, the one, and in some, I presume, the other, but I present this report with the explanations, in part to stimulate further research in the line, and, in part, because I know that the medical profession is already glad to welcome any apparatus or method which will tend to make more certain diagnosis in any class of cases. And I think the use of this aid in diagnosis might become more general.

TABLE OF BLOOD EXAMINATIONS.

CASE.	DATE.	HÆMOGLOBIN.	R. C.—PER. cumm.
Addison's disease.			
1. Mr. H.	April 17th, 1893.	135	10,160,000
Anæmia, Chronic gastritis.			
1. Miss C. M.	Dec. 6th, 1892.	40	1,700,000
	Dec. 29th, 1892.	60	3,120,000
	Jan. 25th, 1893.	80	4,020,000
	Feb. 16th, 1893.	100	5,080,000
2. Rev. W. R. B.	Sept. 28th, 1893.	60	1,080,000
	Jan. 4th, 1893.	100	4,820,000
3. Miss. L. M.	Feb. 25th, 1893.	55	3,800,000
Cerebral Hyperæmia.			
1. Mr. W. E.	Feb. 1st, 1893.	140	7,560,000
2. Mrs. A. P.	Feb. 25th, 1893.	118	7,420,000
	June 6th, 1893.	118	6,300,000
3. Mr. J. W.	June 7th, 1893.	118	6,620,000
	June 23rd, 1893.	115	6,140,000
4. Mr. C. H.	July 21st, 1893.	125	6,890,000
5. Miss K. K.	July 30th, 1893.	115	5,760,000
6. Rev. C. H. L.	Mar. 23rd, 1894.	145	8,940,000
	June 12th, 1894.	130	6,160,000
7. Mr. F.	April 25th, 1894.	122	7,120,000
8. Miss McK.	April 30th, 1894.	125	6,800,000
	June 8th, 1894.	114	5,180,000
	July 3rd, 1894.	103	5,440,000
9. Mr. J. K. J.	May 9th, 1894.	118	6,480,000
Dyspepsia.			
1. Mrs. F.	July 13th, 1893.	105	5,560,000
2. Mrs. M.	June 5th, 1894.	100	4,400,000
3. Miss E. P.	June 13th, 1894.	120	6,180,000
Hysteria, Headaches.			
1. Mr. H.	Jan. 5th, 1893.	115	6,171,428
	Feb. 21st, 1893.	105	4,820,000
2. Mrs. W.	Jan. 21st, 1893.	96	4,200,000
3. Miss T.	June 5th, 1893.	115	5,360,000
4. Miss A. T.	June 28th, 1893.	115	5,620,000
5. Miss H.	July 2nd, 1893.	115	6,240,000
6. Miss B.	July 22nd, 1893.	125	5,660,000
7. Miss E.	Aug. 2nd, 1893.	100	5,500,000
Insomnia.			
1. Mr. A. O.	June 22nd, 1893.	115	5,210,000
2. Mr. O.	June 31st, 1893.	120	6,380,000
3. Rev. H. S.	April 2nd, 1894.	120	6,440,000
Melancholia.			
1. Miss V. L.	Jan. 21st, 1893.	116	5,920,000
2. Mrs. D.	July 8th, 1893.	118	6,440,000
	July 27th, 1893.	105	5,480,000
3. Mrs. W.	Jan. 15th, 1894.	116	6,440,000
4. Miss E. P.	Feb. 22nd, 1894.	116	5,720,000
5. Mrs. F.	Mar. 29th, 1894.	116	6,100,000
6. Mrs. S. H. V.	April 17th, 1894.	120	6,440,000
7. Miss W.	April 18th, 1894.	115	5,160,000
	June 23rd, 1894.	108	4,460,000
Neurasthenia.			
1. Miss K.	Mar. 8th, 1893.	105	5,920,000
2. Mrs. F.	July 13th, 1893.	122	6,420,000
3. Mr. A. C. L.	July 27th, 1893.	120	6,300,000
	June 9th, 1894.	110	5,120,000

4. Miss E. M.	Aug. 1st, 1893.	125	6,000,000
5. Miss B.	Aug. 19th, 1893.	110	4,700,000
6. Mrs. P.	June 11th, 1894.	145	8,020,000
	July 4th, 1894.	125	6,600,000
7. Mrs. H.	June 11th, 1894.	118	5,480,000
Neuritis, Peripheral after pneumonia.			
1. Mr. E. P.	Mar. 27th, 1894.	120	5,540,000
	April 25th, 1894.	118	6,240,000
Rheumatism.			
1. Mrs. P.	Feb. 20th, 1893.	120	7,080,000
	April 5th, 1893.	110	5,020,000
	June 2nd, 1893.	100	4,420,000
2. Mr. G. B. S.	May 8th, 1893.	125	7,220,000
	May 24th, 1893.	110	6,460,000
3. Mrs. W. P. K.	July 6th, 1893.	125	6,160,000
4. Mr. H. C.	July 10th, 1893.	125	7,280,000
5. Miss C.	June 27th, 1893.	112	5,440,000

The Blood in Melancholia.—(*Am. Jour. of Insanity*, April, 1893.) From a study of thirty-five cases, Dr. Whitmore Steele concludes that in melancholia, acute and chronic, there is a marked deficiency in the number of hæmacytes, and that the percentage of hæmaglobin is reduced in like proportion. A number of the cases showing crenation of the hæmacytes at first are found much less crenated after tonic treatment. Tonic treatment is markedly efficacious in this disorder. Iron alone, or with quinine and strychnine, seems equally effective. Although melancholia may not be caused by impoverished blood *per se*, this condition almost invariably exists, and in a large majority of cases improvement of the mental symptoms is co-incident with improvement in the general health and in the quality of the blood.

A. F.

Morvan's Disease or Leprosy?—*Médecine Moderne* for July 29, 1893, notes a case described by Achard, of doubtful diagnosis and much interest. The patient, a marble-worker, had the first paronychia on the right thumb fourteen years before coming under observation. Then followed nine attacks in nine years, with frequent relapses, some of them not painful. When presented to the *Société Médicale des Hôpitaux*, there was in the right hand some tendency to claw-shape, flexion of the articulations, muscular atrophy of the thenar eminence, and loss of pain sense and temperature sense in the right arm, with but slight loss of sensibility as far as the elbow. At first, the condition had been diagnosed as Morvan's disease, but a further examination suggested leprosy.

L. F. B.

A CASE OF MULTIPLE NEURITIS.

By R. K. MACALESTER, M.D.,

New York.

Physician to the New York Dispensary; Assistant Visiting Physician to the Columbus Hospital, and Physician to the French Hospital, O. P. D.

FROM a prognostic and therapeutic standpoint the following case is sufficiently interesting to warrant a brief description:

On June 14, 1894, G. N., an Italian laborer, 19 years old, came—or rather, was dragged by his father—to my class at the New York Dispensary, complaining of severe pains, and of being disabled from rheumatism in his arms and legs, for which trouble he had been treated for several weeks without achieving any amelioration; on the contrary, his condition had been growing worse. After a hasty examination, and recognizing the nature of the disease, I referred him to the Columbus Hospital, where he was admitted.

Dr. Charles H. Lewis, who was then attending, kindly invited me to visit the patient at my pleasure, and placed the hospital records, kept by himself and the house surgeon, Dr. F. C. Kellar, at my disposal. The following history is based upon these records as well as upon some of my own observations:

Parents living and healthy; habits moderate, drinks a little beer, no liquor; was never ill before; no history of lues or saturnismus; had been working in a damp place three months prior to onset of present ailment, which began one month ago.

Status presens: June 15, 1894. Rather tall, slender, anæmic and somewhat emaciated. The physical examination of heart and lungs is negative. Pulse, 108; temperature, 98°; respiration, 18. Appetite poor, bowels

regular; sleeps well. Complains of pains in head, chest, legs and feet.

Is unable to stand or walk unsupported; when attempting to walk supported, the gait is ataxic and paretic, the feet are dragged. Eyes normal; no paralysis of any cerebral or bulbar nerves. The extensors of the hands, and flexors of the feet are weak; some atrophy of these muscles; wrist and foot-drop; grasp very weak on both sides. Knee-jerk, triceps and periosteal reflex of arms absent. No hyperæsthesia, and no pains on pressure at present (he had both, previously, according to his statement). No swollen nerve trunks. On the anterior aspect of each leg there is an area of diminished sensation; delayed heat sensation in this area. The extensors of the hands and flexors of the feet react feebly and sluggishly to the faradic current (strong current). Rectum and bladder normal.

Diagnosis: Multiple neuritis of four weeks standing.

Prognosis: Favorable.

Treatment: Patient was ordered to observe the strictest rest in bed. Calomel, 10 grs., was administered at once. Good nourishing food, strychn. sulph., gr. $\frac{1}{4}$ tid., to be increased later on to gr. $\frac{1}{4}$ tid., massage, and the faradic current were ordered.

Under this treatment the patient made steady and astoundingly rapid progress. On July 23, 1894, he left the hospital, having regained his muscular strength to a great extent, being able to walk fairly, to raise his wrists and feet, and use his hands again.

Remarks: Not possessing a galvanic battery at the time, the faradic current was used for testing the electrical reactions of the affected muscles. The favorable prognosis given in the foregoing history was based solely upon the results thus attained, and the course of the disease showed it to be quite correct, and in harmony with the results of the first examination. Had a galvanic battery been at hand, it would doubtless have been employed as a supplemental means in testing the reactions of the affected nerves and muscles, as well as in the treatment of the case; but *faute de mieux* the results obtained by the faradic current had to be solely relied on for diagnostic purposes. As, in this stage of the disease (four weeks after onset), the affected muscles responded to faradism, although a stronger current was required than under normal conditions, a favorable prognosis was given, which afterwards proved to be in no way defi-

cient. This case offers confirmatory evidence of the fact recently emphasized by Leszynsky,¹ that the faradic current is of paramount importance in affections of the peripheral nerves, its use alone being a reliable and adequate means of diagnosis and prognosis.

It will be observed that while the patient was at his home, being a poor Italian laborer and not having the proper care, food, or surroundings, his condition kept growing worse and worse. From the moment that he was removed to the hospital, placed under more favorable circumstances, with appropriate and medicinal treatment, he began to improve. I visited and examined him on several occasions during his stay at the Columbus Hospital, and was impressed by the rapidity of the progress he made. When he entered he was completely disabled, not being able to use his hands and legs. Five weeks later he was able to go his way and make use of his extremities to good purpose.

Besides the importance of making a correct and early diagnosis, this case teaches what a vast amount of benefit can be derived, in multiple neuritis, from appropriate treatment. Had this patient been left to his destiny his neuritis would have undoubtedly either become general and led him to an untimely end, or developed into chronic degenerative neuritis, which would have disabled him for many months.

23 WEST 53RD STREET.

Tumors of the Peripheral Nerves.—(T. S. T. Morton, M.D., *Med. and Surg. Reporter*, Dec. 23, 1894) Morton reports a case of sarcoma of the sciatic nerve occurring in a woman 42 years old, which he was able to remove without severing the continuity of the nerve and without causing loss of power in leg. Three months after the operation she remained quite well. It is deserving of note, that the tumor was a very large one, four inches in length and seven in circumference, had been developing about a year; had caused little or no discomfort, and no definite history of any sensory or motor disturbance in the sciatic distribution could be elicited. To pressure and palpation the growth was almost insensitve.

¹ See Dr. Wm. L. Leszynsky's most instructive article on "The Value of Electricity in Diagnosis and Prognosis of Affections of the Peripheral Nerves."—*Medical Record*, N. Y., Aug. 18, 1894.

ALCOHOL IN NEURASTHENIA.

BY GRÆME M. HAMMOND, M.D.

New York.

THE diet to be observed in neurasthenia is a question which deserves a great deal of careful consideration. In many cases the digestive organs fail to perform their functions properly, either because the digestive juices are not secreted in their proper proportion, or else chemical changes in their composition diminish or interfere with their activity. This results generally in quantative indigestion, that is, the inability to digest more than a very limited quantity of food, but sometimes certain classes of foods seem to be discriminated against much more than others.

It is not my purpose in this article to consider the subject of digestion in neurasthenia in all its aspects, but to confine myself solely to the influence of alcohol on the digestion of the neurasthenic and on the neurasthenia itself.

The free use of alcohol is always more or less injurious to the normal individual, but it is particularly so in cases of neurasthenia. Patients of this description usually find out for themselves that the free indulgence in wines aggravates their headaches, increases their insomnia, induces more indigestion than they usually have and augments their general symptom of discomfort. On the other hand, it has been my experience that small quantities of alcohol, given with the heaviest meal, frequently assists a feeble digestion. More than this, it seems to dissipate, for a time at least, the depression and confusion which are so often prominent symptoms. It is true that alcohol retards the action of pepsin in experiments performed outside of the body, but within the stomach diluted alcohol, in small quantities, seems to stimulate the gastric tubules and thus increases the secretion of the gastric juice. It is the function of the gastric juice to convert proteids or nitrogenous food into peptones. A diminished quantity of gastric juice, therefore, delays or arrests the digestion of meats, albumin

and gelatinous foods, all of which are nitrogenous and, as a class, are very necessary in supplying muscular strength and vitality. The gastric irritation consequent upon indigestion has in itself a depressing effect upon the nervous system. It has long been my custom, therefore, to advocate the ingestion of a small quantity of alcohol in the form of a glass of claret with the patient's heaviest meal. Of recent years I have used one or more of the various preparations of wine of coca, as it seemed to me the tonic and stimulating effects of the coca on the nervous system, together with the gastric stimulation from the small quantity of alcohol, had generally a more beneficial effect than claret alone. More recently I have used maltine with coca wine. Here the maltine, which contains diastase, materially aids in the digestion of the starchy foods, while the small quantity of alcohol it contains stimulates the secretion of gastric juice and thus assists in the digestion of the nitrogenous substance. On the other hand, the coca acts as a mild tonic and stimulant to the nervous system, diminishing the irritability and despondency and promoting the gradual restoration of nervous strength. Maltine with coca wine is a preparation agreeable to the palate, is a food in itself, assists in the digestion of starchy and nitrogenous foods, and is also a useful tonic to the nervous system. In this form moderate quantities of alcohol can be administered to the best advantage.

On the Influence of Erysipelas Upon the Course of Epilepsy—By Charles Féré (*Ext. des Comptes Rend. des Séances de la Soc. de Biologie*, 1893, October, November, December).

Féré disapproves, in this article, of the method first introduced by Marie, and, among others, employed by Lannois, of injecting products of infectious bacteria into epileptics. In two cases of epilepsy that became affected with erysipelas Féré observed no diminution in the number of the attacks; on the contrary, in one of the cases, the frequency of the attacks appear to be slightly increased. F. insists that the influence of acute intercurrent affections is much too valuable to permit of the rational deduction of therapeutic methods. P. M.

Periscope.

EXCERPTS WILL BE FURNISHED AS FOLLOWS:

From the Swedish, Danish, Norwegian and Finnish:

F. H. PRITCHARD, Norwalk, Ohio.

From the French and German:

L. FISKE BRYSON, M.D., N. Y.

BELLE MACDONALD, M.D., N. Y.

PH. MEIROWITZ, New York.

R. K. MACALESTER, M.D., N. Y.

From the Italian and Spanish:

WILLIAM C. KRAUSS, M.D., Buffalo, N. Y.

From the Italian and French:

E. P. HURD, M.D., Newburyport, Mass.

From the English and American:

A. FREEMAN, M.D., New York

The Editor will not accept as ORIGINAL ARTICLES and CLINICAL CASES those that have appeared elsewhere.

Authors are requested to make none but typographical corrections on the proof sent to them. The manuscript must represent the final form in which the article is to be printed.

CLINICAL.

Treatment of Epilepsy.—*La France Médicale*, February 24, 1893, reviews Eulenburg's recent teachings concerning epilepsy. First in importance and utility as remedial agents Eulenburg places the bromides, especially bromide of potassium. Following out the idea that several bromides act better in unison than a large dose of single bromide, Eulenburg uses bromide of potassium, of sodium, of ammonium, in the proportion of 2:2:1. They are given in water charged with carbonic acid, to escape the cumulative effect of the remedy and the consequent bromism by increasing the activity of the kidney; and also to increase the action of the drug itself. The dose should never be less than fifteen grains. Sometimes as many as one hundred and thirty-five or one hundred and fifty grains are given at one dose, two or three times. Then smaller doses follow. The hours for taking the medicine depends upon when

the attacks come on. If they appear during the day, two large doses of the bromides are given night and morning. If at night only, one dose is taken on going to bed. Bromide must be taken for a long time; for two years, at least, after the last epileptic attack. During treatment the remedy must never be discontinued, even for intercurrent disease. When the amount required as a daily dose to hold attacks has been discovered, it need never be varied, but given steadily until treatment is no longer necessary. About five per cent. of epileptics are unable to take bromide at all. For these there remain preparations of copper, bismuth, silver, arsenic, atropine, canabine, lobeline, digitalis and curare. Among the newer remedies are hydrate of amyline, antifebrine, antipyrine, borax, nitro-glycerine, asmic acid and ergot. Coffee, tea, tobacco, spices, and alcohol especially, must be forbidden. Epileptics should eat oftener than others, to avoid eating too much at a time. If the attacks are nocturnal, the last meal should be very light and taken early, omitting all meats and fat foods. If there is much anæmic or profound exhaustion, nitrogenous food and the Weir Mitchell treatment are recommended. Out-of-door life and absence of intellectual strain are conditions most favorable to the epileptic. Eulenburg considers electricity and hypnotic suggestion thoroughly rational in the treatment of epilepsy. Hydrotherapy is of service, though sea bathing is contradicted. L. F. B.

On a Case of Epileptic Salivation.—By Chas. Féré (*Ext. d. Comptes Rend. d. Séances d. l. Soc. d. Biologie*, 1894, March, April, May.)

In a case of epilepsy with classical attacks, which disappeared after the prolonged employment of large doses of the bromides, equivalents, as follows, developed: pallor, ocular convergence, extension of the head, absent-mindedness, open mouth, from which flowed large quantities of saliva (as much as 124 grammes). From time to time there was sudden salivation without loss of consciousness or vertigo.

Féré believes this case to support Bechterew's view that the cortex exerts an influence over the salivary secretion. P. M.

Clinical Testimony on Sulfonal.—In a review of the more recent additions to the *Materia Medica* Dr. Julian (*North Carolina Medical Journal*) writes as follows regarding his personal experience with Sulfonal: "It is

hypnotic in action, and, in my opinion, its value is indisputable. I profited by the experience of those who had used it, and my first trial of the drug was upon a case of chronic alcoholism. Instead of giving my doses at bed-time, I directed that it be taken immediately before the supper hour in hot water, and it invariably gave my patient sweet and refreshing sleep."

It is said by William Schenck, of Easton, Pa., that if given hypodermically, in a warm solution, it is much more active. In insomnia I have always had good results from Sulfonal. In melancholia I have tried it thoroughly, but do not get so good results as from other drugs, hence my use of this drug is simply where I desire hypnotic action. Here it meets the requirements of the profession; unlike opium, chloral, etc., it does not create the fiendish habit and appetite, but leaves the system in fully as good, if not better, condition than before its administration.

Dr. Schedtler (*Therap. Monatshefte*, July, 1894) reports a series of excellent results from the employment of Sulfonal in the female department of the Psychiatric Clinic at Warburg. In the majority of cases the remedy was well tolerated in doses of 1.0, 2.0 gm. *pro die*, and only in conditions of violent excitement was it found necessary to increase the daily quantity to 3.0 gm. When employed for some time in doses of 2.0 to 3.0 gm. in the twenty-four hours, it should be discontinued at intervals, and under this form of administration no unpleasant after effects were observed. Sulfonal is considered by the author as an efficient sedative for restless, anxious, excited melancholic patients, in fractional doses up to 3.0 gm. in the twenty-four hours.

PATHOLOGICAL.

Medical Jurisprudence of Alcoholic Inebriety.

—T. D. Crothers, M.D. (*International Med. Magazine*, February, 1893). The number of inebriates coming under legal notice is steadily increasing, and the methods of treatment are practically failures in every sense. The natural tendency of all persons who are damaged by alcohol is to lawlessness and crime. The error of regarding all persons as sane who continually poison themselves with spirits results in an increase of crime. Courts and juries judge of these cases from theory and not facts. Such cases should be examined by a medical com-

mission and their conclusions should be final in the evidence. Military hospitals should be built from the license fund and supported by the labor of inebriates sent to it for life or a period of years. All inebriates should be regarded as insane and irresponsible, and should be forced to go into these hospitals and treated as if suffering from infectious diseases. The medical jurisprudence of inebriety promises more for the solution of the alcoholic question than any other means.

A. F.

THERAPEUTICAL.

Comments on *Materia Medica*.—(Squibb's "Ephemeris," February, 1893). *Bromides*—Bromism and the ill effect of the alkaline base are often too soon established, and it is now recommended from France to use the strontium salt as an alternate instead of the potassium bromide. M. Germain Sée and M. Féré noted good results with the former salt. With all the bromides the effect is by no means universally beneficial. Better results are obtained by Poulet if the bromide be combined with either calabar bean, belladonna or digitalis. M. Féré maintains that after repeated large doses of the bromides the alimentary tract is in a condition of sepsis, which prevents assimilation of the salt, and, therefore, he would recommend B. naphthol and sodium salicylate combined with the bromide. *Paraldehyde*.—Since introduced in 1884 it has had a steadily increasing use, remarkably few recorded cases of acute and still less of chronic poisoning. Three and a half ounces were taken in one case, and the patient after thirty-four hours of sleep recovered. Several cases of tetanus have been successfully treated by it, and it has given much benefit in the insomnia of insanity and the milder forms of mania. *Trional and Tetronal*.—Dr. Ernst Schultze, of Bonn, Schaefer, of Jena and the Italian, A. Ramoni, have all reported favorably and at length on the use of both these newer agents in series of cases. Both preparations are found superior to sulfonal and chloral in being more prompt and vigorous, in that the patient awakes more easily and, generally, no unpleasant after effects follow, although occasionally there is slight digestive disturbance. Both have a marked hypnotic and sedative effect, but tetronal has more sedative action. Trional acts more surely and promptly in the sleeplessness accompanying the different forms of neurasthenia and or-

ganic brain affections, and the sleep is more lasting and sound. The sleep from either lasts about six to eight hours and is not generally interrupted by dreams. No effect is produced in sleeplessness due to pain, and no untoward symptoms follow the discontinuance of either.

A. F.

Cascara Sagrada for the Elimination of Uric Acid.—It seems to be the accepted opinion that the pathology of uric acid is more a matter of defective elimination than of excessive formation. Osler says: "Certain symptoms arise in connection with defective food or tissue metabolism, more particularly of the nitrogenous elements; and this faulty metabolism, if long continued, may lead to gout, with uratic deposits in the joints, acute inflammations, and arterial and renal disease."

Not getting the desired results, I was led to drop all the so-called antilithics, and rely simply and solely upon a single remedy—*Cascara Sagrada*. Repeated trials have convinced me that the faulty metabolism is more quickly remedied with this drug alone than with any other or combinations.

Mrs G., aged fifty-five, was for years subject to uric-acid storms, and without getting relief. I exhibited the aromatic fluid extract *cascara* made by Parke, Davis & Co., in ten to fifteen-drop doses, two or three times daily, as demanded, finally settling down to one single dose at the close of the day. The effect was not at once apparent, but within two weeks there was marked amelioration of the aggravated symptoms, and in four weeks the swollen joints had almost resumed a normal appearance, the soreness having nearly disappeared. At this writing (two months having elapsed), there is no complaint whatever, but the remedy is continued. No change was made in the diet, as I desired to more fully test the remedy, and am fully satisfied that the good results were due solely to the *Cascara*. I have tried other brands of *Cascara*, but they have not been satisfactory, hence, I have come to regard the fluid extract above alluded to as the only one upon which I can confidently rely. It never fails, hence my preference.—Dr. W. H. Walling, in the *Medical and Surgical Reporter*, July 14th, 1894.

The Treatment of Epilepsy by Acetanilid.—T. Diller, M. D. (*Pittsburgh Med. Review*, January, 1893),

draws the following conclusions from a study of nine cases. In all the patients there was a reduction in the number of fits, ranging from about 25 to 75 per cent. as compared with other months during which the cases were on bromide and tonic treatment alternately. The remedy was well borne, producing no apparent mental or physical depression. No skin eruption occurred. In any given case in which a great number of fits are occurring, and where it is desirable to control them as soon as possible, the bromides should be of far more value than acetanilid.

A. F.

Chloralose in the Treatment of Epilepsy, Hysteria and Chorea—By Chas. Féré (*Ext. d. Comptes Rend. d. Séances d. l. Soc. d. Biologie*, 1892, February, March, April)

In Féré's hands chloralose proved a valuable hypnotic, without unpleasant after effects, in a number of cases of the above-named neuroses. He recommends its use in beginning doses of 1 gramme, which may be increased to 2 grammes. In one case, however, reported by him in the *Revue Neurologique*, No. 6, this drug produced a condition of temporary paralysis of the extremities.

P. M.

Glycosuria.—F. Troup, M.D. (*Edinburgh Med. Journal*, March, 1893). It would seem that what was known to Aretæus in the first, continues true in the nineteenth century, namely, that the most successful treatment of diabetes is a dietetic one. Cases reacting promptly to diet are usually regarded as light ones, but this is not universally so. When the sugar has been degraded even to a fractional minimum, and this minimum obstinately refuses to disappear, the so-called cure is only a relative one, for the evil tendency remains ready to assume its original energy on very slight provocation. Too strict diet is inconvenient and somewhat dangerous; the gastric and intestinal arrangements are not intended for one kind of food, but for mixed sorts, therefore, the stringency of the diabetic diet should now and then be relaxed, and so derangements of digestion will be tided over; the too great and too continuous use of proteids result in increase of urea, and imperfectly oxidized uric acid may have some casual relation to the appearance of the oxalates, which crop up now and then in diabetic urine, and which sometimes seem to announce the advent of diabetic albuminuria.

A. F.

Society Reports.

AMERICAN NEUROLOGICAL ASSOCIATION.

(Continued.)

*Twentieth Annual Meeting held at the Cosmos Club,
Washington, D. C., on May 30 and 31, June 1, 1894.*

Dr. EDWARD B. ANGELL presented

A CASE OF INFANTILE HEMIPLEGIA, IMBECILITY AND EPILEPSY. CRANIOTOMY.
MARKED IMPROVEMENT. (See page 657).

DISCUSSION.

Dr. C. K. MILLS said he could only repeat what he had said in relation to Dr. Browning's paper of yesterday, that if fluid were withdrawn, death would result.

Dr. J. J. PUTNAM agreed with the last speaker, Dr. Mills. He said that the walls of cysts were difficult to remove.

Dr. WILLIAM A. HAMMOND, of Washington, D. C., said that he had recently performed craniotomy for imbecility in two cases. One was that of a man from Canada, eighteen years of age, who, in consequence of a fall from a steamship berth became an idiot. All the events of his early youth were forgotten. He remained this way some four years. Thinking it was a case for craniotomy, he told the father that the chances of recovery were slight, but that he did not think the operation itself would prove injurious. The father consented to the operation. In performing the craniotomy, a large sized trephine was used, and openings made in two places, over the supra-orbital notches. He rallied badly from the anæsthetic, so that it was necessary to give hypodermic injections of brandy and digitalis.

Four weeks later there was no improvement to be observed, but at the end of two months he began to show signs of amendment. He was subject to incoherent grief and laughter. This ceased and he was allowed to go out. He went home three months later. A letter had been recently received from the father, in which he stated that the boy was all right. In the other case, an opening as large as a silver dollar was made over the fissure of Rolando, and marked improvement resulted.

THE PRESIDENT said that he thought all cysts were not alike. There were some that communicated with the ventricles; some that were strictly limited, and among these many were due to old meningeal hemorrhage. On opening the brain, one could not say at once what the size of a cyst was. If, after careful probing, it is found to be very large it should be let alone; but if it involved only a very limited area it should be tapped, and if possible the cyst walls should be excised, if a closure cannot be effected in any other way.

DR. E. B. ANGELL, of Rochester, remarked that he considered it was a case of meningeal hemorrhage.

Dr. C. H. BROWN presented a paper on

AMYOTROPHIC LATERAL SCLEROSIS OF THE
FAMILY TYPE. (See page 707.)

DISCUSSION.

Dr. G. J. PRESTON, of Baltimore, said that a number of years ago, he had seen a case of acute poliomyelitis, which, after the acute attack had passed off, had assumed a spastic condition with exaggerated reflexes and ankle clonus. Neither the muscular atrophy, nor the corresponding paralysis was very extensive, and the patient made a good recovery. This case throws a good deal of light on the pathological processes at work, showing that they may begin in the nerve cells and pass into the tracts.

Dr. BROWN, in reply to a question from Dr. Jones said that there were no general sensory or pain symptoms; the disease was slowly progressive, the regular systematic course pointed to a nuclear disease, rare, and hard to classify.

By THEODORE DILLER, M.D., read a paper on

NON-OPERATIVE TREATMENT OF BRAIN TUMORS.

ABSTRACT.

The problem which I wish to discuss is whether all tumors which can with reasonable certainty be localized in regions accessible to the surgeon, should be operated upon. For my part I am prepared to take the position that, as a rule, cases of brain tumor in which the growth can be definitely or approximately located, should be treated surgically only after medical treatment has failed to cause an arrest of, or improvement of symptoms. There are cases, however, where with an arrest of symptoms, the life of the patient may remain so intolerable that an operation is clearly demanded. On the other hand, an operation should not be delayed longer than from one to three months where symptoms are progressively growing worse.

I am led to these conclusions by the relatively unfavorable outcome of surgical operations. About one-fourth of all cases operated upon die as the result of the operation. In only forty six per cent. of the cases was the operation a success in that the growth was removed and the patient recovered. I fear many of these successes were only surgical successes. If only those cases were accounted successful in which the growth did not recur, say within two years, I very much fear that the percentage would be reduced by one-half or three-fourths.

The author related a case of his own which was a surgical success, and which seemed to promise some improvement at first, but which ultimately relapsed and became worse than before the operation.

As illustrating some of the problems, the author cited four cases:

CASE I.—Boy, *æt.* 15; headaches, rt. hemiparesis, optic neuritis, rt. homonymous hemianopsia. Localized headaches over left occipital region. Diagnosis. Tumor in left occipital region. Under treatment consisting of strychnia sulph. gr. $\frac{1}{12}$, and potass. iodid, gr. x, the boy made some slight improvement for two months. At the end of that time, he passed from under Dr. Diller's observation, and died ten months later.

CASE II.—J. D., age 33. Headaches for ten years past. Lately staggering to right, optic atrophy. For several months had taken 150 grs. potass. iodid. i. d.

Maniacal symptoms quickly followed by melancholic symptoms. After discontinuance of potass. iodid, and substitution therefor of elix. fe. ginn. et strych., symptoms rapidly disappeared. The man is now practically well except for the impaired vision due to the optic atrophy. The diagnosis was tumor of the left lobe of the cerebellum pressing on the middle lobe. Shortly after the improvement began an operation was considered, but in view of the great fatality attending these operations on the cerebellum, and the fact that improvement was taking place, it was decided not to perform it.

CASE III.—Woman, *aet.* 21; Jacksonian epilepsy; muscles about left eye become first involved. Then shoulder, arm, forearm, hand of same side, in order named; no loss of consciousness; spells frequent, last one minute.

Diagnosis: Centre of irritation over the centre for left eye. Likely only sclerosis, or meningeal thickening rather than a tumor.

These spells do not seriously interfere with patient's life, so operation was not urged. It may, however, be done yet. Medical treatment affects course of trouble very little.

CASE IV.—Widow, *aet.* 45; Jacksonian epilepsy; signal symptom in right great toe; whole right leg subsequently involved; no loss of consciousness; spells occur months apart and interfere very slightly with patient's work; operation was not thought advisable. Diagnosis: Irritative morbid product over centre for right great toe.

It is surely our duty to look squarely in the face the failures and practical difficulties which beset these operations, and not be led away by the brilliancy of localization. We must mean by a success something more than recovery from the effects of an operation. We must recognize, I believe, that not all intracranial growths which can be definitely or approximately localized are proper cases for a surgical operation. We must realize, as pointed out by the late Professor Agnew¹ in the last paper from his pen which was published, that these

¹ *University Medical Magazine.*

operations will have strictly limited field in spite of our rich and growing knowledge of the functions of the brain.

As a very important matter, too much neglected in the past, results of operations should be given in detail at a considerable period after the operation with a careful and impartial estimate of the conditions before and after the operation.

It would be a matter of the greatest interest if the subsequent histories, up to the present date, could be given of all the cases which have been operated upon. I had myself hoped to engage in such an investigation, but found, after the idea occurred to me, that I would not have time to complete it before this meeting of the Association.

DISCUSSION.

Dr. M. ALLEN STARR, of New York City, said that without wishing to enter the domain of cerebral surgery with reference to tumors, he desired to record a very interesting case. He was a skeptic on therapeusis. A very interesting Frenchman had been brought to him by Dr C. E. Nammack. The man denied ever having had syphilis. He had insomnia and headache. The existence of spasm and aphasia indicated a tumor of the brain. He was treated for two months by mercurial inunctions and six hundred grains of the iodide of potassium daily. At the end of this time, he was shown at the clinic at the College of Physicians and Surgeons as a case illustrating how therapeutics had proved the existence of a gumma. The treatment had caused such marked improvement that no operation was performed. The patient suddenly died, and a cystic sarcoma was found on the left side of the brain, the cyst extending in beyond the corpus callosum. The treatment had caused the absorption of some of the fluid of the cyst, and had taken off the pressure, but the moment the treatment was stopped a sudden effusion had caused death.

Dr. J. J. PUTNAM thought that we should not be disappointed in the efforts of the surgical treatment of cerebral tumors if our expectations were reasonable, and if in operating we did not attempt more than was distinctly indicated.

He had once—before the days of exact localization—seen a patient die slowly from a large, hard, extra-cerebral, fibroid growth, which might have been removed

with the complete recovery of the patient, up to the last day. The chance of finding another such case encouraged persistent efforts.

Dr. WHARTON SINKLER said that he had had under his observation for three or four years a patient who had distinct Jacksonian epilepsy. The trouble began with a general convulsive attack, in which he was unconscious for some time, and this was followed by frequent attacks (15 or 20 a day) of twitching of the angle of the mouth, with occasional movements of the fingers on the same side, without loss of consciousness. After these symptoms had continued for nearly two years he began to have violent headaches, localized in the right frontal region, and at the same time optic neuritis, with greatly choked discs, were discovered on examination of the eyes. The pain was intense, and as it did not yield to medical treatment, it was deemed advisable to have an exploratory trephining done. Dr. Keen operated, making a large bone flap, and made a thorough investigation of the brain by probing and palpation, but failed to discover any new growth. There were evidences, however, of great intra-cranial pressure, from the fact that as soon as the dura was opened the brain bulged enormously.

The patient's condition steadily improved from the time of the operation. The attacks have almost entirely ceased; he has had two or three of the slight convulsive twitchings of the mouth, and there has been no return of headache; the optic neuritis has subsided, and the patient's vision is almost normal. More than a year has elapsed since the operation, and the patient is well enough to do some work.

This case illustrates what Dr. Diller has remarked in his paper, namely, that cases of brain tumor frequently seem to improve without operation. In this case, although a trephining was made, there was nothing accomplished by the operation, except the temporary relief of intra-cranial pressure.

Dr. G. W. JACOBY also claimed that so long as we could not be more certain of our diagnosis early in the case of supposed brain tumor, so long should we be chary of early operative interference, and grant a certain place to other modes of treatment. That Jacksonian epilepsy, right hemiparesis, slight aphasia, preceded by constant severe headaches, vomiting and slightly oedematous optic discs, warranted a diagnosis of brain tumor, will hardly be denied; and still, in a case seen with Dr. Dana,

which presented this train of symptoms, an examination of the blood of the patient revealed the presence of many malarial plasmods, and subcutaneous injections of quinine were promptly followed by a disappearance of all these symptoms and complete restoration to health.

Dr. DILLER, of Pittsburg, said that more exact data for determining the size and nature of brain tumors were greatly needed. Work in this direction had not kept apace with that in localization. He could not agree with the President that localization had gotten to be such a very simple matter. Often, to be sure, it was, but there are many cases that present, even with our present lights, difficulties, sometimes insurmountable, in the way of localization.

By E. D. BONDURANT, M.D., Assistant Superintendent of the Alabama Insane Hospital at Tuskaloosa, presented a paper on

THE MEDICINAL TREATMENT OF CHRONIC EPILEPSY. A CLINICAL STUDY.¹

ABSTRACT.

During the past three years there have been under treatment at the Alabama Insane Hospital about one hundred epileptic patients. Every one of these has been under constant observation, and a more or less careful and complete clinical record kept, using for the registration of the convulsive seizures a graphic chart devised for the purpose. In this manner data in some volume have accumulated, bearing not only upon the apparent effects of the various drugs employed, but furnishing accurate information as to the number and character of the convulsions and the general mental and physical status of the patients during long periods when no medicinal treatment was used. It is not intended to review the therapeutics of epilepsy, but only to briefly mention our own results in the practical treatment of the class of patients mentioned with the bromides and also with some of the more recently introduced and less commonly used remedial agents, concerning whose action very favorable reports are going the rounds of the medical press.

Prominent among the latter is sodium borate, which

¹ Read by title.

has been the subject of extensive experimentation, both in this country and abroad, during some years past. It has been advocated as a substitute for the bromides in certain cases, and accredited with active anti-spasmodic virtues. We gave it at one time a quite extended trial in our wards, using it in a variety of cases in quantities of from 3.0 to 8.0 gm. per day, divided into three doses. In two cases as much as 12.0 gm. daily was continued for several weeks without ill effect. It was usually given in solution in water with a little glycerine added. The small doses, 1.0 gm. three times a day, seemed without effect; 6.0 to 8.0 gm. a day served in many cases to reduce the number of the convulsions, but exerted no marked influence upon the character of the convulsive seizures, nor upon the mental states of the patients.

In two instances complications arose. In one patient, a white woman, twenty-seven years of age, having one or two convulsions a month, the administration of 1.5 gm. of the drug caused vertigo and headache, which disappeared promptly upon withdrawal of the borax, to as promptly return when, after a few days, the borax was again administered. In the second case, a white female, fifty-three years of age, who had usually not more than four or five attacks yearly, three days' use of borax, 2.0 gm. three times a day, was followed by a general urticaria-like eruption upon the skin; this eruption disappeared when the borax was discontinued, but reappeared at once when the medicine was again given, this occurring three successive times. Then B. naphthol, 0.3 gm. was given in connection with the borax, when no eruption appeared, although the borax and naphthol were continued for some weeks.

Several members of the coal tar series have been accorded a careful trial.

Acetanelid was given to patients of all classes, in small and in large doses, for short and for long periods, but the ultimate result here, as with the sodium borate, was not of an encouraging nature. The smaller doses produced no visible effect. When doses of from 2.0 to 3.0 gm. daily were given there was a slight diminution in the number of attacks in almost all cases; a few cases exhibited some improvement in general mental and physical state, and in no case was any perceptible ill effect produced.

One or two cases seemed to do rather better under its use than under the bromides. There is no dulling of

intelligence among its effects; whenever the mental state seems at all affected, the change is for the better.

Phenacetin has yielded about the same result as acetanilid. It has been given in the same doses and to many of the same patients. No ill effects were noted. In most instances it seemed utterly inert.

With antipyrine the final result is scarcely more favorable than is the case with the two remedies above mentioned. In a majority of the cases no effect is produced. In one case the drug has acted injuriously; in two the effect has been beneficial, in one of these very markedly so. The drug has been repeatedly used in this case, with improvement in mental state and physical health and diminution in number and severity of convulsive attacks in every instance; in this same case the bromides produce much mental dullness and usually increase the number of fits; borax, acetanilid, phenacetin, B. naphthol and other drugs have been used without effect, so it would seem that in this one case antipyrine is of positive value.

No bad effects were seen in any instance. The drug seems well borne, and large doses—3.0 to 5.0 gm. daily—can be continued for many weeks without danger.

We have used B. naphthol to some extent as an intestinal antiseptic in cases of epilepsy as well as in other forms of disease and insanity, and with excellent results as regards the relief of the immediate symptoms of intestinal poisoning; it seems also to exert some favorable influence upon the course of the disorder under consideration, as shown by a reduction in the number of convulsions greater in proportion than has been obtained with any one of the four first-named remedies. In six cases selected as giving some evidences of intestinal complication, the fits were reduced nearly one half. No apparent influence, good or bad, is exerted upon the mental symptoms.

The administration of the bromides, singly or in combination, constitutes the treatment most generally recommended and employed in the class of patients here dealt with. Clouston remarks that the physician who, in hospital practice, does not keep most of his patients upon the bromides a great part of the time is failing in his duty to them; and Gowers asserts that the use of the bromides for several years continuously is the most trustworthy treatment for epilepsy of all kinds. These views represent the prevailing opinion of the medical profession as to the therapeutics of epilepsy.

We also have used the bromides to a far greater extent than we have any other class of mediums, having at some time given these drugs in some form to almost every epileptic patient in the institution. We have used potassium bromide alone; sodium bromide alone; combinations of these two with ammonium bromide, and with various other agents, as arsenic, belladonna, digitalis, ergot, and potassium iodide; recently have employed strontium bromide quite extensively. The average dose of bromide of potassium or sodium has been, say, gm. 3.0 to 6.0 daily, divided into three doses, but the quantities used have varied widely in different cases. Potassium bromide has been given in some cases in the graduated and rapidly increasing doses recommended by Gowers, *i. e.*, beginning with a dose of 2.0 gm. once daily the quantity is increased and the interval between the doses lengthened; thus, 5.0 gm. are given after an interval of two days; then after three days, 10.0 gm.; four days later, 15.0 gm.; five days after this, 20.0 gm.; six days after this dose, 25.0 gm.; then after seven days have passed, 30.0 gm. are given; the doses are then progressively diminished and the interval between the doses shortened until the original dose of 2.0 gm. daily is reached, the period of treatment having extended over about four weeks. The bromide may then be discontinued, or small doses may be given for months after. It may be said in passing that our results with this mode of administration have not been more favorable than with the salt used in the ordinary manner. The very large doses have, however, caused no distress nor ill effect in any case in which they have been used. They also frequently failed to arrest the convulsions.

Concerning the effects of the bromides in general, observations made during short periods make the efficiency of this class of drugs in temporarily reducing the number of epileptic attacks sufficiently obvious. Probably seventy-five per cent. of these chronic epileptics will have the number of their attacks temporarily diminished. A very small proportion of these, say one case in twenty, will show some real and permanent benefit. In a great majority of the cases, however, the continued use of the bromides is disappointing and in many instances evidently injurious. During a term of weeks or months the patients have fewer convulsions, perhaps, but a large proportion of them show a distinctly unfavorable change in mental state, and often in general physical health.

They become dull, fatuous, and less able to care for themselves; the bromide acne is not rarely troublesome, despite the arsenic and B. naphthol which may be combined with the bromide; and lastly, it seems to be doubtful if in the long run the bromides possess, after all, any thing like the power of reducing the number and severity of the epileptic seizures with which they are credited.

The fits do not occur for a time, as above said, but the time comes sooner or later when they do occur, and with explosive violence and frequency, not seldom attaining to the severity of the *status epilepticus*; the epileptic stream may be dammed up, and the dam built never so high, but the flood rises and eventually breaks over, and the number of convulsions which then occur equal or exceed the number which the patient would have had had no anti-epileptic treatment been used.

As to the mental dullness which might be properly described as an acute bromide dementia, we note it in a very large proportion of the patients who take the drug in doses sufficient to produce any visible effect upon the convulsions.

Furthermore, in a small percentage of cases, the bromides, from the beginning, increase the number of convulsions, and add to their severity. In a notable case, that of a young man who had suffered from attacks of petit mal for a year, the administration of 6.0 gm. of potassium bromide daily not only failed to arrest the seizures, but increased their number several fold and changed their character from attacks of transient unconsciousness to violent seizures of *grand mal*. These convulsive attacks ceased shortly after the bromide was withdrawn, and the patient has done infinitely better since, under no treatment; no attack of either *grand* or *petit mal* has occurred for some months past, and a marked improvement in general health as well as in mental state has taken place. The least harmful of the bromides seems to us to be the salt of strontium. Our results with this, one of the more recent candidates for anti-epileptic honors, have so far been excellent. It seems equally potent as an inhibitor of the convulsive discharges, and it causes less mental hebetude and less acne than the potassium or sodium salt, though the mental weakness and the cutaneous eruption do eventually appear.

More important than the question as to which drugs possess most pronounced antispasmodic properties is

the question of whether it is after all advisable to, in chronic cases, by the frequent and continuous use of the bromides, or of any other anti-epileptic agents, measurably prevent the occurrence of the convulsive seizures. I believe an unprejudiced investigation of the matter, extending over several years, will convince any one that the inhibition of the epileptic explosions is, in most cases, unadvisable. It is far better that a patient have a certain number of convulsions, and in the interval between the attacks possess intelligence enough to care for himself, deport himself properly, or even be able to do some useful work, than that the number of attacks be reduced to one-half, or to one-tenth, or to zero for that matter, if at the same time the patient must be made imbecile and extremely troublesome. We have under notice at this time a case in point—a white woman who for many years had from five to ten attacks of *grand mal* during every month, but was always in the time intervening between the attacks perfectly quiet, harmless and well meaning, able to attend to herself and her room, to knit, sew and assist in the ward work generally. She was at different times actively treated by the bromides and some other medicines; at rare intervals—once or twice a year—she would have a brief maniacal outburst, and was then usually given sedatives. In consequence of this treatment, or from some unknown cause, the convulsive attacks ceased entirely three years ago. She has had not a single attack of either *grand* or *petit mal* since December, '91; almost a cure of the epilepsy, it would seem. Simultaneously with the cessation of the spasms, however, the woman went into a state of long drawn out motor and psychic tension, a species of semi-conscious, waking-dream state, with constant restlessness, verbigeration, destructive tendencies, and persistent noise; with variations this state has persisted until the present time—three years and more. The patient has been during all this period, and is now, one of the noisiest and most troublesome patients in the hospital. We would gladly welcome a return of the convulsions.

In reviewing the opinions above expressed, as well as the results given in the tabular statements, the difficulties of correctly interpreting the good, bad or indifferent influence of drugs in epilepsy should be borne in mind. It is a very difficult matter to determine whether or not an apparent effect is due to the drugs adminis-

tered. Certainly results obtained in observations extending over a few months only are practically worth less. It is a fact of some importance that all patients will apparently improve for a short time under any change in treatment. Here, our first results with all drugs have been our best results. This would suggest that too great importance should not be attached to the seemingly very favorable effect of strontium bromide indicated in the table above. We have used the drug about eight months only; continued use will very probably give a less distinctly favorable result. The same may be said of the B. naphthol, which has apparently been thus far beneficial in several instances.

Almost all cases of chronic epilepsy exhibit a rhythmical rise and fall in the number of convulsions, and a similar variation in general mental and bodily state, regardless of the administration of medicines, which is to be remembered in estimating the value of medicinal or other treatment. The natural tendency, of course, is to give medicine when it is apparently needed—*i. e.*, when a patient is having an unusual number of fits—and then to attribute any diminution in the number of attacks to the effect of the medicine used. In numerous instances the reduction in the number of convulsions and the possible improvement in mental state is but an expression of the tendency to cyclical variation above referred to.

The maniacal attacks, which occur in certain of the cases under discussion, before, during or after a series of convulsions, prove troublesome at times, and bring up the question of the advisability of using sedatives. This we have done extensively in the past, but without frequent good result, and it seems that the majority of the patients do better if not drugged with hyoscin, conium, chloral, *et al.* Seclusion is less injurious, and if the patient is simply placed in a room alone and prevented from doing harm, the attack wears itself out quicker and the patient is left in far better condition than if sedatives had been used.

The most serious of the complications which arise during the course of chronic epilepsy is the condition usually designated as the "status epilepticus," in which the convulsive seizures rapidly succeed one another, and consciousness is not regained during the intervening time. Of this "epileptic state" there are many gradations, and the symptoms vary somewhat in different cases. Its milder forms are marked by the occurrence

of ten to thirty convulsions only, with stupor and somnolence; these mild forms shade by insensible degrees into the severe and characteristic instances of the *status epilepticus*, in which convulsions to the number of many hundreds occur within a few hours, and are accompanied by profound coma, rapid rise of temperature to 106°, 110° F., or even higher; abolition of the reflexes, involuntary evacuations of bladder and bowels, and the formation of acute bed sores. The majority of these latter cases terminate fatally; and even the milder grades of the affection endanger life. The mortality of all classes, reckoning mild and severe together, is not far from fifty per cent. The "status" is of not infrequent occurrence; any epileptic patient is liable, without warning, to pass into it, and stand in a few hours in imminent danger of death. The immediate cause of the outbursts is obscure; worthy of notice is the fact above referred to, that it is a complication most apt to arise in patients who have been under continuous treatment with anti-epileptic drugs.

As to the means at our disposal for the relief of this condition, the most used and trusted agents heretofore have been anæsthesia by chloroform or ether, morphia hypodermatically, atropine, hyoscin, amyl nitrate, nitro glycerine, and chloral by the mouth or rectum. Of these, in our hands, chloral has given the best results; used at an early stage of the epileptic state, in a single large dose—3.0 to 4.0 gm.—it very frequently gives entire relief. We now use it more generally than we do any other medicinal agent, although in but too many cases it fails utterly. With the other remedies named our results have been by no means good; when morphia atropine, nitro glycerine, etc., were depended upon, our patients usually died; with ether or chloroform anæsthesia, which was at one time our chief reliance, the results were little better; our patients when once in a typical epileptic state, we came to regard as lost; and these severe forms, as above mentioned, often refuse to yield to chloral. Some time since we began the practice of blood letting in these cases as an experiment, and the results thus far have been such as to lead us to adopt a more hopeful view of the possibilities of relief of the *status epilepticus*. Whereas before a large percentage of our "status" cases died, now almost all of them recover. Not to unduly increase the length of this paper by reporting the cases in detail, I will summarize by say-

ing that we have used blood letting in thirteen instances of severe and typical epileptic state, in which coma was complete, and convulsions recurring at short intervals, with entire relief in nine instances, partial relief in two cases, without apparent effect in one case (in which chloral subsequently checked the attacks), and one death. Thirteen cases of the *status epilepticus* with one death only is a good result. I may add also that the patient who died had been entirely relieved of a previous attack of the status by blood letting, and that in the fatal attack twenty-four hours' time had been wasted in attempts to relieve the patient with chloral and bromides, so that he was almost *in articulo mortis* at the time the venesection was made. We have recently had two other deaths in the epileptic state; neither of the patients had been bled.

The practice of blood letting in the *status epilepticus* is by the majority of authors not mentioned, or only mentioned to be condemned. The very favorable results given by this procedure in our wards, however, bespeak a further trial of venesection for the relief of this condition. Our present custom in dealing with the epileptic state is to give a full dose of chloral in the beginning of the attack, repeating it if necessary after two to four hours; if the convulsions are not checked, or persistently recur as the effect of the chloral wears off, a vein is opened and twelve to twenty-four fluid ounces of blood are drawn. The results under this treatment are all that could be desired.

To briefly summarize;

First. Borax, antipyrine, acetanilid, phenacetin and many other alleged anti-epileptic agents, are, save in rare cases, without influence over the course of chronic epilepsy with insanity.

Second. B. naphthol is occasionally beneficial in selected cases.

Third. The bromides will postpone the occurrence of the convulsions, but in most cases do more harm than good. The least injurious is the bromide of strontium.

Fourth. In dealing with the maniacal attacks, seclusion may be necessary. Sedatives should be employed very rarely, if at all.

Fifth. The best single remedy in the *status epilepticus* is blood letting. Of drugs, the most valuable is chloral.

Book Reviews.

LEHRBUCH DER NERVENKRANKHEITEN FÜR ARZTE UND
STUDIRENDE, von Prof. Dr. H. Oppenheim, Berlin,
1894. S. Karger, Publisher.

Our first feeling on reading the text-book of Oppenheim is one of distinct disappointment, and although this feeling is somewhat effaced after closer examination it still remains to a considerable degree. From a fairly intimate knowledge of the author's contributions to the department of medical science in which he has labored, we were led to expect that the proposed book by him would differ materially from the ordinary text-book in that it would give a fairly good summary of the pathology and pathological anatomy of nervous diseases as they are conceived of to-day by those who are sometimes wrongly termed advanced pathologists, that is, pathologists of the school of Pasteur and Metchnikoff. It does not, and it is this that is most disappointing in the volume before us. This may be a fault of our own, however, rather than of the author, as he disclaims in the preface to his book any attempt to enter into the pathology of nervous diseases; simply a desire to state the pathological anatomy with sufficient clearness that the clinical entity may be readily comprehended and the *raison d'être* of the symptoms easily understood.

We have had, however, such a very large number of comparatively new text-books on nervous diseases during the last few years built on the same plan that one is led to the question: Wherefore, another of the same kind? But, again, this, perhaps, is not a pertinent question to authors.

The book before us is divided into two parts, the first of which comprises the general manner of investigation or examination of the patient and general symptomatology. The second part, which is comprised in seven sections, is taken up with a description of organic and functional nervous diseases in great detail. We have nothing but words of praise for the first part. It is a plain, straightforward exemplification of the method of examining the patient, told with detail and exactness, laying stress on the important things and quickly dismissing the unnecessary or over-complicated. The student or beginner who makes these chapters his own will be well prepared to begin learning the art of examination.

Part II. is lead off by a discussion of the diseases of the spinal cord, to which is prefixed a few remarks on the anatomy, physiology and experimental pathology of the spinal cord. As in other parts of the book, here the author has shown his discrimination in the use of illus-

trations. They are well selected and well executed. The diseases of the spinal cord are not classified as inflammatory, degenerative and functional, but as to whether the disease is confined to tracts or are systemic. The chapter on *Tabes dorsalis* is a lucid statement of the disease as it is understood to-day. Erb's opinion as to the astounding frequency of syphilis as a causative factor of this disease is apparently concurred in, although the author remarks emphatically that *tabes* is nevertheless not a syphilitic disease from a pathological point of view.

Some symptoms which other writers lay stress on as of importance in early diagnosis of the disease, such as *Signe d'escalier*, swaying on sudden halting, *Romberg's* symptoms, etc., are not mentioned. The author considers the four symptoms of *Westphal's* sign, the loss of power of contraction of the pupils to light, the lancinating pains and the *analgnesia* as the especial ones in making the early diagnosis.

A noteworthy fact is, the author's apparent antipathy to eponyms, especially when the name is not a Teutonic one, and is seen here in the absolute absence of the application of the term *Argyll-Robertson* pupil.

The treatment of the disease is handled with thoroughness, and especially to be commended is the manner in which the author recapitulates the plan of treatment. Especially is it important and useful to beginners. The mode of treating tabic patients is of greater importance than the use of drugs. The benefit which the author believes to be derived from electricity will probably strike an unsympathetic chord in the mind of many neurologists. The efficacy of suspension—very slight—is judiciously stated. Although the author is not a follower of Erb in the use of mercury in *tabes*, he believes in its use in the early stages of the disease, especially when it can be clearly traced to syphilis or when it runs an irregular course. In the description of this disease, as in many others, we remark the absence of a lucid definition at the beginning of the chapter which we believe would facilitate the student in remembering and comprehending the disease.

Throughout the volume, and even in this chapter, the activity of infection in producing nervous diseases is emphasized very particularly. This is seen in the statement of the etiology of acute anterior poliomyelitis, where the disease is considered, and rightfully we believe as the result of infection entirely. The clinical descriptions of anterior poliomyelitis, both acute and chronic, and the directions for treatment are in keeping with other writers.

In the consideration of amyotrophic lateral sclerosis the author follows *Charcot*, both in his clinical description and statement of the pathological anatomy, who taught the disease to be a sclerosis of the lateral columns with a secondary involvement of the gray matter, a position recently fortified by *Strumpell*.

The position taken by *Leyden* and supported by *Senator* and other of the author's *confreres* in Berlin, that amyotrophic lateral sclerosis cannot be separated from progressive bulbar palsy and that the clinical picture of amyotrophic lateral sclerosis can exist without a lesion in the lateral columns, is not referred to.

Combined lateral and posterior sclerosis is rather fully described. Oppenheim apparently does not take the view of this disease that some recent writers have, viz., that nearly all cases of this disease are cases of chronic myelitis of the dorsal region with secondary degenerations, or cases of locomotor ataxia with a complicating or secondary degeneration in the lateral column (Dana). For the author the process is most frequently a systemic one, the disease affecting most frequently Goll's and Burdach's columns and the lateral pyramidal and direct cerebellar tracts; or the lateral pyramidal and the direct cerebellar and Goll's column alone.

Regarding the etiology, although he does not agree with Gowers that syphilis rarely can be postulated as a causative factor, yet he does not give to syphilis a very important place. He does, however, attribute to anæmia and cachexia, weighty etiological significance and, we believe, with good reason.

In the description of Friedreich's ataxia we are glad to see that the author coincides with Friedreich and Schultze in his description of the anatomical changes found. The hypothesis recently suggested by Senator (and which is really conceived of from work done by Nonne, Menzel and others) that the primary change in this disease must be sought for in the cerebellum and that the changes in the cord are secondary, really makes one fear that Senator has not discriminated between *heredo ataxie cerebelleuse* and Friedreich's disease—two diseases which we think are separable without great difficulty.

Simple senile paraplegia—a condition to which Gowers called attention in the *Centralbl. f. Nervenheilk.*—a few years ago, is not noticed by Oppenheim. In this he has the support of most neurologists—American and German at least.

The chapters on spondylitis tuberculosa and the affection of the meninges of the spinal cord are excellent, as are the cuts illustrating the latter condition.

The author's views on acute myelitis are clear and his expression of them dogmatic. In the etiology of this disease we are glad to see that he no longer dallies in an uncertain way with such factors as catching cold, sexual excess and the like, but goes at once to the root of the matter and states that infection is the most important cause of acute myelitis. The description of multiple sclerosis is lucid and complete. Although the author does not impress as does Erb, the frequency of occurrence of this disease. A few pages are devoted to the atypical forms of this disease, and neurologists can only be obliged to Oppenheim for stating his opinion with positiveness that the pseudo-sclerosis as described by Westphal, has no dependency on hysteria as was suggested by Charcot and his disciples. As might be expected, considering the immense labor that has been devoted to the subject during the past five years, the chapter on syringomyelia is quite complete.

The part of the book which we believe will be found most instructive to the student and most helpful to the beginner is the part devoted to the affections of the peripheral nerves, both single and multiple.

The introduction to the chapter on diseases of the brain is taken up with a few remarks on the anatomy and physiology of the brain, and then a brief statement of the facts of localization. Mooted points and questions still *sub judice* are not touched upon. The illustrations accompanying this part of the book are well selected and admirably executed.

The chapter devoted to tumors of the brain is not so complete and satisfactory as it might be. In diagnosing cerebral tumors, we do not think much stress should be given to information that can be obtained by percussion. In considering the treatment the percentage of cases benefitted by operation should be stated. The early indication for operation should be emphasized. The rapidity of progress, pointing as it does to the kind of neoplasm and the chances for operation on such a growth and the rules for operation are points that the student and general practitioner want light on.

Considering the alarming extent to which attacks of cerebro-spinal meningitis prevail, the chapter on this disease is of interest to us. Experience in this country does not tend to confirm Oppenheim's opinion that the disease prevails so commonly in winter and spring. The Leipzig epidemic studied by Strumpell was severest in June. "The disease shows no special predilection, so far as one can judge, for particular regions for any season of the year and no one class of people is affected, the apparently robust and the weak suffering alike" (Flexner and Barker).

We are surprised to note that the author says nothing of the micrococcus lanceolatus which is believed to have a causative relation to this disease, and which has been isolated by pathologists in almost every epidemic of this disease that has been carefully investigated since Eberth first isolated it in 1880.

Syphilitic disease of the brain is considered in a thorough manner. We are glad to note that the author remarks that it is not uncommon for syphilitic affections of the brain to appear within the first two or three years after infection. In speaking of the treatment, the author is not so pessimistic as Gowers, who solemnly states that there is no evidence that the disease which causes the manifestation of the symptoms ever is or ever has been cured. And again, unlike him, he recommends the most energetic treatment by mercury, and particularly inunctions, and later the iodides in large doses. Gowers tell us that he has found no case of intracranial disease which indicated that mercury had succeeded where iodide had failed.

In the description of dementia paralytica we are disappointed in the inadequate description of the pathological changes, particularly those so commonly found in other parts of the nervous system than the brain.

In the clinical description we remark that the author gives expansive ideas a relatively proper place and weight. They are by no means so frequent, nor should they have the diagnostic significance given to them, which is accorded by the ordinary text-book on mental diseases.

The opinion that temperature of the body in dementia paralytica

is a variable one is not in line with recent investigations (*vide* Peterson, this JOURNAL).

Of the diseases classified under the neuroses, the description of hysteria is a mirror held up to the classic description of Charcot and his school. Neurasthenia is fully described, but the chapter contains nothing new.

The traumatic neuroses to which the author has given so much attention in the past are considered to a considerable extent, and the author has apparently slightly modified some of his views, particularly as regards the objective symptoms of the affection. He is, however, directly opposed to the opinion of Charcot, who places traumatic hysteria in the category of an auto-suggestion. For Oppenheim the pathogenesis of the traumatic neurosis is that it follows a psychical and physical shaking or shock (*Erschütterung*). Both manifest their sinister action mainly on the brain hemispheres, and bring about molecular change, especially in the area concerned with the higher intellectual functions and this in turn dominates the motor, sensory and sensibility functions dependent on it.

In considering the diagnosis the author, speaking of simulation, says that, the continued increase of the reflexes, the mechanical, muscle, and nerve irritability, the fibrillary tremor, or, also, the tremor and clonic contraction in a single muscle, which a healthy person cannot cause to contract by itself, such, for instance, as the triceps, supinator longus, omohyoideus, etc.; the atrophy, the vasomotor phenomena the symptoms of neurasthenia cordis, the pupillary difference, the anomalies of secretion, and other objective signs must be sought for and when found are positive evidence against simulation.

During the last few years the importance and frequency of simulation has been gradually growing less, both in this country and in Europe. A few years ago nearly half the cases coming to neurologists for the symptom complex of traumatic neurosis after injuries were considered to be simulation. Now 10 per cent. would probably more than include the number in this country and 5 per cent. in Germany.

Recent opportunities of seeing a considerable number of cases of this disease in Germany has prompted the reviewer to seriously question the occurrence and diagnosis of such a large percentage of true traumatic neurosis and so few cases of simulation and genuine traumatic hysteria. The system of pensioning so universally prevalent in Germany would seem to me a very potent influence to simulation and the method of treatment employed by many of the clinicians, viz., keeping them in bed and frequent, prolonged and suggestive examinations as rather conducive to the bringing prominently into the foreground any tendency to hysteria. Personally, we think traumatic hysteria plays far more frequently in the guise of the traumatic neurosis than German neurologists are willing to admit.

The space devoted to epilepsy, paralysis agitans, chorea, tetanus Basedow's disease, etc., with which the remainder of the book is taken

up is quite adequate and the clinical descriptions leave nothing to be desired.

In spite of the data that is continually accumulating illustrative of the pathological anatomy of paralysis agitans, the author thinks nevertheless that it is a neurosis. The changes which have been described are, he thinks, a part of the well known senile process of the nervous system. This is not, however, we must say the opinion of other writers. Redlich in a recent contribution says the changes are in no wise comparable to senility, for, in cases of senile cords, such vascular conditions as have been described are not found.

The author's therapeutic suggestions in this disease have the same virtue that Caesar's renowned message had. They are not weighed down by redundancy and circumlocution. He says, "The physician can much injure and little help."

Speaking of the treatment in other diseases, the author is to be commended for his statement of positive opinion which should be of great help, particularly to the student and general practitioner. For instance, electro-therapy in Basedow's disease, he considers to give the best results and states his conviction in no uncertain terms.

We are disappointed that the surgical handling of this disease has not been discussed in more detail, and that in enumerating the drugs that are of service, aconitia, which has been so highly recommended by Sequin was omitted.

In a general way it may be said that the text-book before us is an excellent resumé of clinical neurology and that its particular value is that it leaves the impress of its author. It is not a suggestive book; the neurologist will not find in it much to help him. Unlike a famous work on the same subject in our own tongue, we are afraid that experience will not show as it does with the latter that the oftener you study or consult it the more you find in it to admire and the more you appreciate its usefulness. At the same time we believe the book will be a satisfactory one to students, particularly because of the clear exposition of diseases from a clinical standpoint and because of the authoritative style of the writer. The general practitioner will likewise find in its pages the solution of such cases that may seem to him obscure and puzzling.

In a previous place we have remarked that the author is not given to the use of eponyms. This is by no means attributing a fault, perhaps a virtue rather. We must, however, remark that the names of American investigators and clinicians are conspicuous by their absence. Oppenheim says in his preface that he cannot give credit for utilization of facts to individual sources or individual discoverers, and he lives up to the letter of this statement when American names or sources are concerned.

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DECEMBER, 1894.

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THE
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OF
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Original Articles.

THE LOCALIZATION OF CUTANEOUS AND
MUSCULAR SENSATIONS AND MEMORIES.
A STUDY OF THE FUNCTIONS OF THE
MOTOR AREA OF THE CORTEX OF THE
BRAIN.¹

BY CHARLES L. DANA, M. D.

I N 1888 I published an article entitled, "The Cortical Representation of the Cutaneous Sensations" (JOURNAL OF NERVOUS AND MENTAL DISEASE, October, 1888). In that article I stated that the clinical and pathological evidence so far collected showed that the motor areas of the cortex contain also the representation of cutaneous sensations. I stated also that the sensory centres for the different parts of the body appear to be larger and more diffuse than the motor. After reviewing the experimental, the clinical and pathological, the anatomical and embryological evidence, and the evidence from teratology, I said: "I am certain that no amount of scrutiny can explain away the numerous cases in which superficial cortical lesions have caused monoplegias and monoanæsthasias." I believe that the accumulated experience since that time has entirely confirmed the position which I took, and I do not know of any one who now seriously contends that the motor areas have not also some sensory

¹ Read at a meeting of the New York Neurological Society, Oct. 2, 1894.

function. Dr. Bastian, in his work on "Paralysis, Hysterical and Functional," has well said, however, that while the sensory function of the so-called motor cortex is acknowledged, the exact nature of this sensory function remains yet to be determined. We have, I quite admit, yet to learn the part taken by these areas of the brain in tactile, thermal, muscular and pain sensations. Since my first article was written a considerable amount of evidence—experimental, clinical and pathological—has accumulated, and it has seemed to me that the time had come when I might again go over this subject and determine, if possible, more exactly the sensory functions of this much-disputed region. In an article contributed to this subject by Dr. Hale White (*Lancet*, September, 1893) the author states that the conditions necessary to furnish perfectly good evidence pathologically of the function of the central convolutions are very exacting: the lesion must be somewhat limited, it must be definitely localized, its nature must be known by a careful autopsical record, and the clinical phenomena caused by it must have been carefully studied. Very few recorded cases answer all the requirements; still, there are a few that were observed before my first article was written, and there have been some since that time. Besides this, there have been a number of cases in which a certain amount of positive evidence has been furnished—evidence which, so far as it goes, is absolutely to be depended upon. There have also been added a number of careful experimental observations; so that I do not quite agree with Dr. White in saying that the time has not yet come for another critical study of cases bearing on the problem. At any rate, I have determined to collect and make such a study, and I present the fruit of my labors herewith. The facts which I have collected may be grouped in three classes: first, the experimental; second, the clinical and pathological; and, third, the purely pathological.

Experimental.—I would say at once that, so far as the experimental evidence goes, I shall not attempt to make

a complete or critical analysis of the records. I would refer, those who wish to study this to the very complete and thorough article by Dr. F. W. Mott (*Brit. Med. Journal*, Sept. 23, 1893, p. 685). Dr. Mott's experiments were made upon monkeys. He excised certain parts of the motor area; or, rather, he simply cut the cortex from the white matter by introducing a brain-knife bent at an angle. He afterward tested the amount of paralysis and the defect in sensibility by the clip test, and he found that defective sensibility invariably occurred on the side opposite the lesion.

If the whole leg area were removed, there was paralysis of the opposite leg, permanent as regards the fine movements of the foot, diminished sensibility of the limbs to all forms of stimulus for some days after the operation, and permanent blunting of sensibility to the pressure of a weak clip fixed on the sole of the foot. This was tested on three animals. When the whole motor area was separated there was permanent paralysis of the hand and foot, and paresis of the other muscles. Such animals showed, for some time after the operation, defective sensibility; only very painful pricking or heat would cause a response, and the parts permanently paralyzed were also permanently anæsthetic. Dr. Mott infers from his experiments that a permanent defect of tactile sensibility, especially in the hands and soles of the feet, occurs after large lesions of the motor area, something akin to the paræsthesia of ataxia. He found in these cases degeneration of the internal capsule and the striæ medullares of the optic thalamus, with some degeneration in the corpus callosum. There was no degeneration in the posterior longitudinal bundle or the lemniscus, and there was no injury of the gyrus fornicatus.

In the article by Dr. Hale White, to which I have already referred, he states that Professor Schæfer has made similar experiments and has caused similar results. Professor Schæfer found that removal of a part of the anterior central convolution produced defect in sensibility as well as motion. He also observed that the

area removed must be of a certain size in order to produce this sensibility disturbance; in other words, that the excision of a very small motor area might produce some motor defect without any detectible sensory defect.

Mr. Victor Horsley's experiments led to conclusions in the same line (*Nineteenth Century*, June, 1891).

Clinical and Pathological.—The clinical evidence which I shall present consists of four cases of my own and nineteen others collected from literature. The first two are taken from the records of Bellevue Hospital, and the descriptions are not sufficiently complete to make them of more than corroborative value. I present them, therefore, very much condensed.

CASE I. (personal).—Male, aged 46. History of syphilis ten years before. Patient developed headache, convulsions of the left side of the body, followed by general convulsions and coma. Recovery from the convulsions, with a residuum of complete left hemiplegia and complete hemianæsthesia. Death.

Autopsy showed a syphilitic gumma of the dura mater pressing into and involving the central convolutions. The gumma was located about the middle portion of the fissure of Rolando, and was about one and a half inches in diameter.

CASE II. (personal).—Male, aged 55. History of syphilis. Gradual development of right hemiplegia, the paralysis being considerable in extent, and associated with some loss of tactile and pain sensibility on the right side. Death.

Autopsy.—Tumor size of hen's egg in middle of left ascending frontal convolution.

CASE III.—My third case is one of exceptional interest, both as regards localization and because it shows the practical value of cerebral surgery—a thing about which some doubts have been arising lately.

The case was operated upon by Dr. Conway, and I expect him to report it in its surgical details later. I shall, meanwhile, describe only the medical side of the case. The history will, of itself, show the credit due to Dr. Conway's skill.

Sarcoma, involving hand and arm centre, paralysis, sensory symptoms, Jacksonian epilepsy. Operation. Great improvement.

Boy, aged 16. At the age of thirteen a blow was received on the head, followed in six months by general epileptic convulsions. Later these became limited to left side, with aura beginning in fingers. A year before operation left arm became gradually weaker, with pains and twitchings in it; intense headache; vomiting and optic neuritis developed. Examination May 29, 1894, showed



FIG. 1. CASE 3. Location and extent of bone removed. At the point where the cross is made (x) the cortex is softened.

paresis of left arm, with very slight paresis of left leg and face; exaggerated reflexes on left side. Sensory condition: Left hand and arm showed diminished sense of contact and pressure; sensory circles enlarged to 2 cm. (he felt two points as one in this area); localization of point on hand or arm touched defective; also, defective sense of position; cannot co-ordinate well (partly from paralysis); fumbling and clumsiness; weight sense

defective; does not recognize nature of objects placed in hand; temperature sense normal; pain sense slightly exaggerated; no sensory troubles in the leg or face.

Operation by Dr. Conway: Trepanning over middle of anterior central convolution; removal of bone over an area three inches by two and one-half (see Fig. 1). Beneath the dura was found a flat tumor lying on pia, which is attached to it anteriorly; pia mater and cortex infiltrated posteriorly with whitish spots (this area did not react to an electrical current); anteriorly, over the base of the second frontal, the cortex is softened and destroyed by an infiltrating tumor, which is about one-quarter of an inch thick, and extends beyond the limit of the trephine opening. It could not be entirely removed anteriorly. Tumor was a spindle-celled sarcoma (Gouley), good recovery was made.

One month later: Pains gone, paralysis improved. Sensory condition practically as before, except that contact sense was improved; no pain; less hyperalgesia; reflex excitability less. Muscular-articular sensations slightly more impaired.

Four months later: Paralysis still less; sensory condition about same; no pain; no headaches; *optic nerve normal*; no convulsions. General condition excellent. Patient eloped.

One month later, Nov. 3, 1894, the boy returned, having had several epileptic attacks. He still has no headaches, or eye symptoms. The paralysis and sensory disturbances are about the same.

CASE IV.—Amelia B., age 17, single. When six years old had a fall and was struck on the left side of the head. This was followed a week later by a right-sided convulsion. Has since then had convulsions of an epileptic character with loss of consciousness, but always confined to the right side. They increased in frequency to one or two weekly. With them mental deterioration set in, and she became nearly imbecile. Her attacks were unilateral, and began in the right arm, which was raised over the head. Then the head and face and leg were involved. Lately the attacks became general.

Status presens.—There was slight weakness on right side, in arm and leg; no anæsthesia or ataxia. The knee-jerks were feeble on both sides, and so were the elbow-jerks.

She was operated upon by Dr. Robert T. Morris, on

September 26, 1894. He removed a piece of bone two inches by one and one-half from over the middle third of the anterior central convolutions, the area extending a little above the middle third and anteriorly over the base of the second frontal convolution. (Fig. 2.)

On removing the bone and opening the dura, both of which were normal, the brain tissue in the anterior part of the wound was seen to be dark and disintegrated. The extent of this could not be exactly ascertained without cutting into the brain unnecessarily. Its superficial area was about one inch in diameter, but might easily

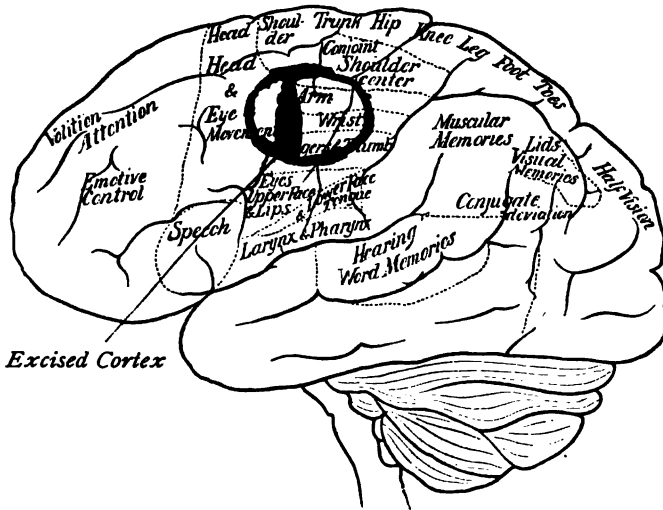


FIG. 2. CASE 4. Showing the area of bone removed and the position of the diseased cortex excised.

have extended down and forwards considerably. A strip one inch long and one-fourth inch wide was removed, and the wound sewed up.

As this case is not reported for its general pathological and clinical interest, further details are not given now.

The wound was sewed up, dressings applied and the patient made a good recovery, thanks to Dr. Morris' skill.

Three days after operation she had had three right epileptic attacks. Examination at this time showed slight hemiplegia, most marked in lower half right face, less in right arm, least in leg.

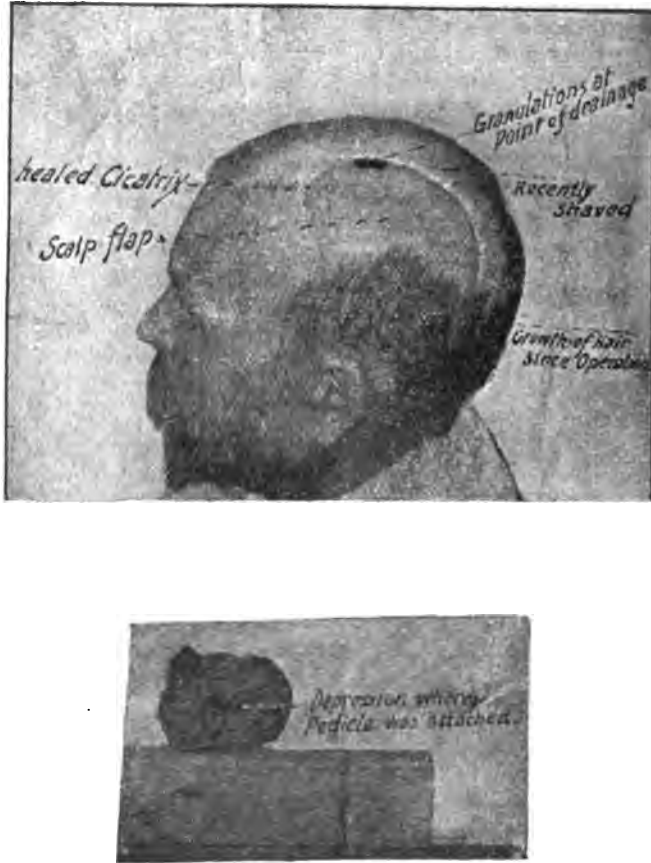


FIG. 3. CASE 5. Showing location and size of tumor in Dr. Steele's case.

Sensory.—Tactile anæsthesia was present in the right forefinger, where she could not feel a touch. It was slightly present on the rest of the hand, less still on the face; no anæsthesia of the leg. Analgesia was present in same area as the tactile anæsthesia. There was no

heat or cold anæsthesia. There was great clumsiness and awkwardness in moving the fingers and arm, and a slight difficulty in localizing touch. She knew the position of the limbs and fingers.

She could not tell the nature of familiar objects placed in the hand. She could carry the finger to the point of the nose quite accurately.

The striking symptoms were the clumsiness and inability to handle and recognize objects, and the tactile and pain anæsthesia. Three weeks later slight paralysis remained, the sensory symptoms had disappeared, except a slight awkwardness (more than could be explained by the paralysis). She had had no more convulsions, she seemed brighter mentally, and was feeling well.

CASE V.—Male, aged 41. Gradual development of pain and paræsthesia in right leg, with Jacksonian epilepsy. At the end of a year the whole right side was affected. Examination then showed right hemiplegia and "sensory blunting" of right side. General symptoms of brain tumor. Operation: A fibro-sarcoma two and one-half inches by two inches was "shelled out" from the region of the upper third of the Rolandic convolutions. (Fig. 3.) The tumor was attached to the falx by a pedicle, and "grew from the wall of the longitudinal ruins." From this point of origin, says Dr. Steele, it grew into the Rolandic fissure, displacing the paracentral lobe. After the operation "sensation was first felt in the shoulder muscles, the next day he could move the arm, and on the third day he could draw up the forearm; and now he has good control of the whole arm except the fingers. He has no power, and but little sensation, in the fingers." He was discharged improved, and improving.—Dr. D. A. K. Steele, *Journal of American Medical Association*, Jan. 27, 1894.

CASE VI.—This case is reported under the title of a tumor of the cortex, producing hemiplegia, with loss of tactile, pain and muscular sense. A man, aged 51, began to have local epilepsy in October, 1890, the convulsion beginning with paræsthesia, and paralysis marked in left arm. He began to lose tactile, pain and muscular sense in the left arm and hand. Loss of tactile sense was absolute in the ring finger. The arm grew weak and the leg began to drag. Gradual increase of paralysis and general symptoms of brain tumor. Death in six months. Autopsy showed a softened melano-sarcoma 1 inch by $1\frac{3}{4}$ inches. "The tumor involved the posterior central, su-

terior parietal, supra-sylvian anterior portion of angular and occipital convolutions of the right side." The special point is the simultaneous involvement of the arm and hand in paralysis and anæsthesia.—Dr. Frank S. Madden, *JOURNAL OF NERVOUS AND MENTAL DISEASES*, Feb., 1893, p. 125.

CASE VII.—Man, crush of skull just behind right parieto-frontal section, followed by delirium and left hemiplegia. Exploration showed fracture of base as well as vertex. Removal of bone and contused brain over an area four by three inches. No rise of temperature. Return of consciousness on sixth day. Temporary left facial hemiplegia. Paralysis of left arm and

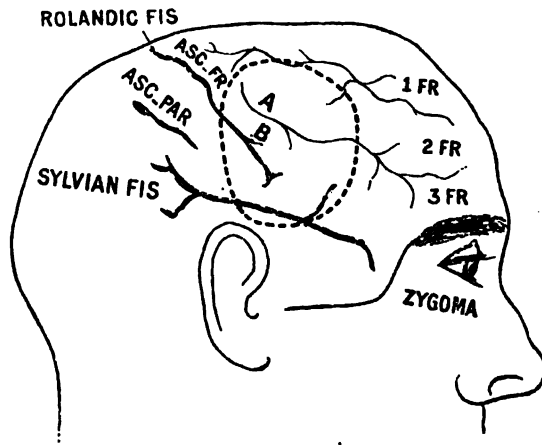


FIG. 4. CASE 7. Laycock. The dotted line shows the extent of the injury to the bone, the letters A and B are placed over the deepest part.

leg improved up to a point, so that he could walk well, and left arm showed "good average power." "Voluntary movements were performed with left limbs in extremely awkward manner. He had complete loss of sense of position in the leg, and incomplete in the arm." "He could move the muscles of his face, but could not make a specified movement." Eye muscles normal. "Sense of resistance almost absent." Sense of weight not tested. On the affected side he had sensation of very rudimentary description, these being only tactile (?) and painful sensibility. He could not locate a touch or feel what touched him, but he knew there was contact.

He felt a pinch as painful, but could not locate it.

Delayed sense of contact on face, less on arm. He could not distinguish heat from cold, but if the heat was great it caused a diffuse sense of pain. In the leg the symptoms were similar, but less marked. Other senses normal.

Says Dr. Laycock: "The following parts of the cerebrum would appear to be involved: Lower half of ascending frontal, greater part of sigmoid flexure, posterior third of lower and middle frontal and base of upper frontal. Also, the base of the corresponding part of the falciform lobe. The motor centre for the arm was principally involved. (Fig. 4.)

Electrical tests were made with the galvanic current, one pole on the neck, the other, a small olive-shaped electrode, was placed over the face, arm and leg centres. With currents of five to ten ma. parasthesic sensations were felt over the corresponding segments of the affected side. With stronger currents, 12 to 13 ma., both sides were affected, the right less than the left. There was no pain and no motor reaction. The negative pole gave far more definite results.

Later sensations of burning pain, cramp and weakness developed.—Laycock, *Australian Medical Journal*, July, 1893.

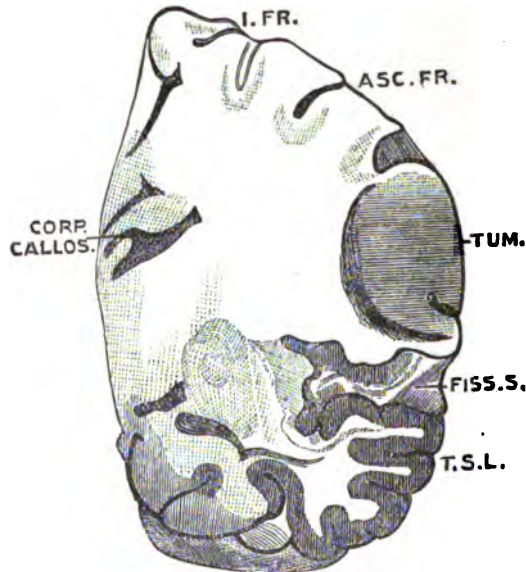
CASE VIII.—C. M., *et.*, 68; tumor of the brain. Focal symptoms were weakness of the left leg, great weakness of the left arm and at the left angle of the mouth; exaggerated knee-jerks.

Sensory symptoms.—There were slightly diminished tactile, markedly diminished and altered painful, and much diminished thermal sensations all over the left arm and leg and left part of the face and trunk; the sense of position being also very imperfect in the arm and leg, especially the former. No hemiopia and no other affection of any of the special senses. Gradual increase of symptoms, and death about four weeks later.

Post mortem.—A tumor was found in the right hemisphere, the size of a walnut and hard in consistence, surrounded by a margin of softened brain tissue. It involved the cortex for about an inch and was situated about an inch above the lower end of the fissure of Rolando, entirely replacing the gray matter. The growth was limited to the ascending frontal and parietal convolutions, both of which it invaded at their lower ends. (Fig. 5.) There was white softening of the whole centrum ovale, which it may be assumed was of a date

later than that when the examination that I have described occurred. The tumor was a scirrhus carcinoma. The history of the case showed that the disease began in the face centre. It was accompanied with epileptiform attacks which were associated with a sensory aura.—Dr. T. Wilson, *Lancet*, Feb. 27, 2892, p. 463. Service of Dr. Bastian.

Dr. Wilson says in comment: "In passing it may be remarked that the occurrence first of a sensory aura (pins



Tracing from a photograph, actual size, of the vertical transverse section passing through the lower end of the right fissure of Rolando. TUM., Tumour. FISS. S., Posterior limb of the fissure of Sylvius. T. S. L., Temporo sphenoidal lobe. I FR., Superior or first frontal convolution. ASC. FR., Ascending frontal convolution. In the temporo-sphenoidal convolutions the gray cortex comes out well, but in the upper part of the section the details are very indistinct, owing to the white softening affecting this part.

FIG. 5. CASE 8. Scirrhous of brain.

and needles), immediately followed by clonic spasm in the same parts, is of interest in connexion with the theory that the motor area of the cortex contains sensory cells."

CASE IX.—Male, 39. For two years Jacksonian epilepsy involving right leg chiefly, but with pain and spasm in right hand. Later, "constant and excruciating pain" in right hand and fingers, slight weakness of right side, right arm in rigid flexion, "tactile sensation

fairly acute," skull opened over middle of left central gyrus and posterior part of third frontal. Small tumor lay on cortex. Cortex decorticated one-fourth inch deep over area larger than a dollar in the anterior two-thirds of opening. Next day right hemiplegia most in hand, no more pain in hand. "Sensation fairly acute." Can't speak. On seventh day, less paralysis. "With closed eyes cannot locate a pin prick on right side, but feels it promptly and keenly." Later, relapse. Some return of pain and convulsions. Paralysis improved.—Drs. J. Frank and S. Church, *Amer. Journ. Med. Sciences*, July, 1890.

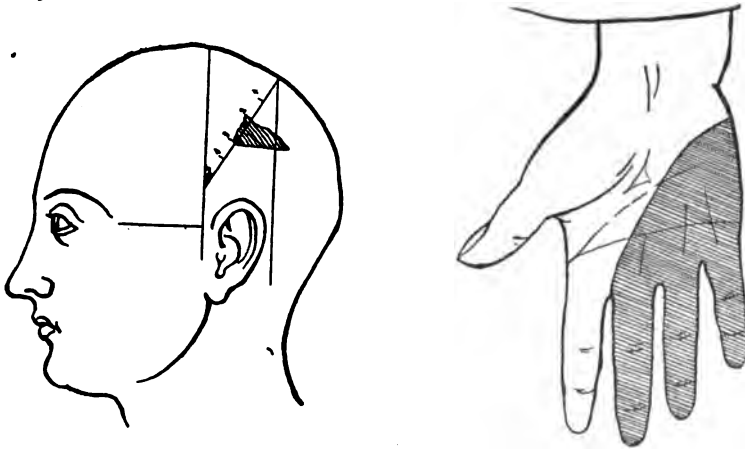


FIG. 6. CASE 12. Dr. J. Lynn Thomas. Showing location of scar with reference to fissure of Rolando, and the area affected with local hyperidrosis.

CASE X.—A patient with Jacksonian epilepsy and symptoms indicating cortical tumor. Operation; no tumor found. Resection of cortex for space one and one-half by one ctm. No fever. Patient developed a complete hemiplegia, which disappeared at the end of a month, "leaving only a slight anæsthesia and ataxia of the fingers, which prevented him from pursuing his occupation as a tailor." Dunin, *Verhandlungen, des X Intern. Med. Congress, Band IV., p. 11.*

CASE XI.—Male; cortical degeneration, result of an injury. Before operation, sensibility normal. During operation of trephining cortex of left ascending parietal on level with first frontal gyrus was somewhat lacerated. A small bit of cortex, three by six mm. and two mm.

thick, was excised. Entire injured surface had a diameter of not over one and one-half ctm. For at least seven weeks after operation patient had "anæsthesia of right arm up to elbow, for touch, pressure, motion and position, sensibility to pain, heat and cold was retained." There was also impairment of highly purposive movements, inco-ordination and a little athetosis.—P. C. Knapp, *Intra-cranial Growths*, p. 61.

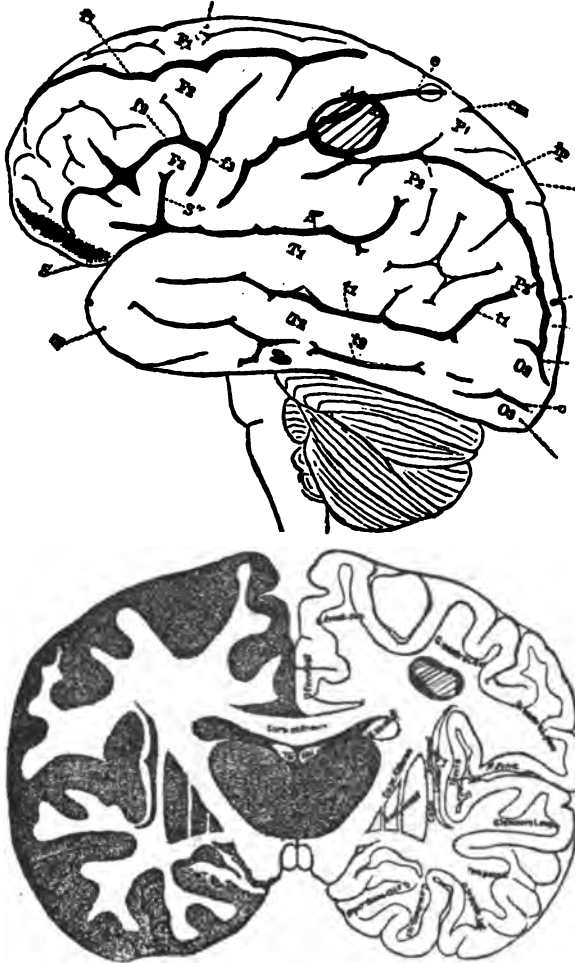
CASE XII.—Man, age 44. Received a blow on the left side of the head, causing a comminuted fracture. It was followed by a paralysis of the right shoulder and arm, with pain. Operation, with removal of bone and contused brain tissue. (Fig. 6.) The wound healed and paralysis gradually improved. Later it progressed again, and six months after the wound the situation was as follows: Weakness of left arm and hand; paralysis of the interossei and abductor of the little finger. Diminution of tactile sensibility in the upper third of the forearm. Two years later he could flex the fingers and use the hand to write. Tactile sensibility was lessened in the forearm and hand; sensibility to pain lessened in same region. Thermic sensibility slightly increased. Some hyperidrosis of the right hand.—J. Lynn Thomas, *Brit. Med. Journ.*, Feb. 24, 1894, p. 400.

CASE XIII.—Male, age 34, gradual development of right brachial monoplegia with symptoms of brain tumor. The lower extremity and face were not at all involved. Patient had phthisis. There was "a very marked diminution of sensibility of all forms, in the periphery more than in the parts near the trunk." No disturbance of sensibility, except in the arm.

Post mortem showed a tubercular tumor in the white matter just below the arm area of the cerebral convolutions. Its exact position is shown in the accompanying figures, taken from the original. (Figs. 7, 8.)—L. Darkschewitz, *Neurolog. Centralbl.*, vol. 9, 1890, No. 23.

CASE XIV.—Male, age 40. Traumatic hemorrhage of pia mater, compression of Broca's convolution and of middle central convolutions, aphasia, partial right hemiplegia and hemianæsthesia. Trephining. Clot found and removed. Arm totally paralyzed; tactile and pain senses impaired on paralyzed side. Three years after operation paralysis of right hand remains, "with marked diminution of tactile and pain sense. . . . The muscular and temperature senses are perfect." (Fig. 9.)—Starr, *Brain Surgery*, Case xviii, p. 161.

CASE XV.—Boy, age 12. Right hemiplegia with athetosis, due to fall at age of 2. Trephining by Dr. McBurney. Cavity in middle of anterior cerebral convolution incised and drained. After operation, hemi-



FIGS. 7, 8. CASE 13. Showing location of tubercular tumor in Darkschewitz's case.

plegia the same; "the right hand as high as the wrist was decidedly anæsthetic to touch, temperature and pain, but there was no affection of the muscular sense." (Fig. 10.) One week later anæsthesia much less, athetosis gone.—M. A. Starr, *Brain Surgery*, p. 38, Case v.

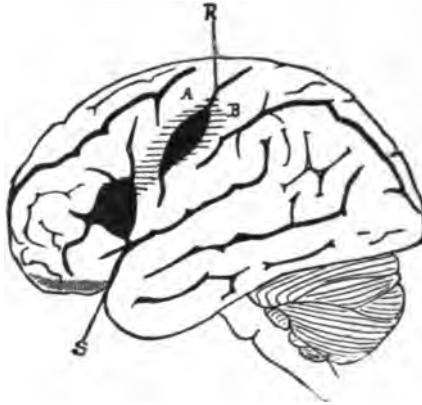


FIG. 9. CASE 14. Starr. Diagram of the Left Hemisphere of the Brain, showing the situation of the clot.

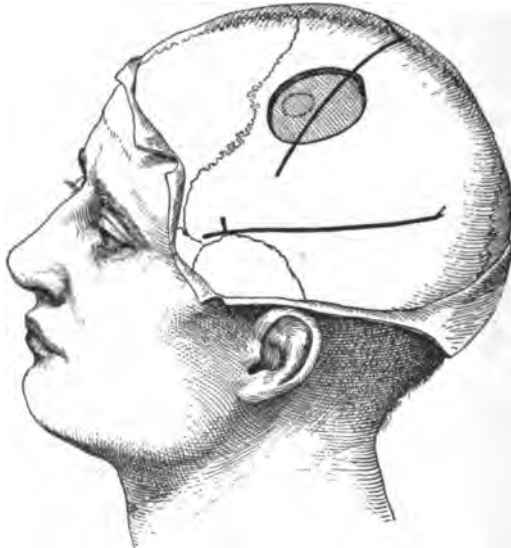


FIG. 10. CASE 15. Starr. The situation of the opening made in the skull.

CASE XVI.—Boy, age 15. Blow on head, followed in twenty-four hours by paresis of right arm and leg, but not of face or arms. "The grasp of the right hand was less than half that of the left. The pain sense while not destroyed was greatly inhibited. The temperature sense was somewhat interfered with. His arm could be moved,

but none of the delicate movements of fingers, hand or forearm could be made. He could not tell the difference by touch between my silk handkerchief and the woolen blanket on his bed. A half dollar put in the palm of his hand he called a dollar. He said a wooden dumbbell, weighing half a pound, weighed about five pounds. The right foot, toes and leg were somewhat more paralyzed than the arm. The sensation was in nearly the same condition as in the arm."

Dyslexia, agraphia, intelligence good. He could only walk with help. Gradual intensification of symptoms



FIG 11. CASE 16. Hudson. Showing location of clot.

with headache until fourth day, when operation was done. Depressed circular fracture formed as indicated in inner circle. (Fig. 11.)

A tarry, firm, extradural blood clot three-quarters of an inch thick at centre of circle found and removed. Gradual improvement, the muscular sense being last to recover. He was well three months after operation.—Dr. W. H. Hudson, *Annals of Surgery*, 1893, p. 421.

CASE XVII.—Male, 25. Blow on head, followed by right hemiplegia and complete motor aphasia, with twitchings of muscles of right hand and arm. He expe-

rienced some sensation in arm and leg, but apparently *none in the face.*" Operation second day, removal of intradural clot; three ounces of blood removed; clot was three inches square and a quarter of an inch thick. Button of bone removed; it was over base of third left frontal convolution. Complete recovery.—Dr. Herman Mynter, *Annals of Surgery*, May, 1894, p. 539.

CASE XVIII.—Male, aged 23. Compound fracture of the skull and wound of the arm centre. History of blow on the right side of the head, with compound fracture; marked depression and extensive comminution, the depression being at the centre of the Rolandic region. The left arm below the elbow was completely paralyzed. The intellect was unimpaired and sensation normal.

Operation three hours later. There was found a laceration of the surface of the brain three-fourths of an inch long, with slight loss of substance. After recovery patient had paræsthesia in left arm and leg. He developed hernia cerebri. Three months later the patient was found to have partial paralysis of the left arm and leg. Some time later the author states that examination showed still the presence of anæsthesia of the fingers and some rigidity of the forearm muscles.—L. L. Williams, *New York Medical Journal*, January 9, 1892.

Dr. Williams says: "Motion at shoulder almost normal; can flex and extend the elbow and wrist; pronation and supination perfect; can flex fingers, but cannot completely extend them. All of the fingers of the left hand are partially anæsthetic, but not analgesic. Perception of heat and cold is normal; the tactile sense alone is affected. He picks up articles with difficulty—fumbles with them as a child would. With his eyes shut he cannot pick up a book, and cannot distinguish between a knife and a pencil held in his hand.

He adds in comment: "The persistence of numbness in the fingers has been noted in a number of cases involving injury of the cortical motor area, and would appear to indicate, at least, a very close relation between the centres for motion and sensation. The inability to pick up articles with the eyes closed, and the awkwardness manifested in picking them up at all, seem to indicate faulty co-ordination, although these symptoms may be partly due to anæsthesia of the fingers."

CASE XIX.—The patient was a girl, aged 15, affected with Jacksonian epilepsy and progressive paralysis of left upper and lower limbs. Operation and removal of

tumor the size of a hen's egg from the right central convolutions. Operation followed by paralysis, which greatly improved. Tactile, general, thermal, painful and muscular sense impressions, which before the operation were intact, were affected in a certain measure after the operation over the whole left half of the body except the face.—Albertoni and Brigatti, *Revista Sperimentale di Fren.*, XIX., Jan. 1, 1893.

CASE XX.—Male, aged 18. History of a fall, followed by symptoms of development of cerebral abscess—headache, fever, hebitude. Four weeks after fall Dr. Nason says: "I noticed left facial paralysis and paralysis of the left arm, with impairment of sensation (chiefly tactile sensation) over the paralysed areas. The tongue also deviated slightly to the left when protruded. I thought, too, that the left leg did not move quite so freely as the right. There was no paralysis of the ocular muscles, and the pupils were equal and reacted to light." Operation: Trephining "over lowest third of fissure of Rolando." An abscess was found opening on the lower third of the ascending frontal; about an ounce of pus was evacuated. On the third day after the operation he regained power in the leg; next day, power and sensation in shoulder and arm. Pain in left arm, face still paralyzed. At the end of a week some power in left hand and partial return of sensation. Six weeks after operation "patient seems quite well, and but for fingers of hand being a little clumsy has completely recovered." Dr. Nason says: "The mode of recovery from the paralysis goes to prove that the various cortical centres are centres for associated movements and not for individual muscles; also, that sensation and motion are represented together in the central convolutions. It also would tend to prove that the centres for the various associated movements of the arm are placed from above downward in the following order: Shoulder, upper arm, forearm, wrist and hand, the thumb being lowest of all."

CASE XXI.—A woman, 55 years old. Gliosarcoma of the corpus callosum. The patient had suffered for two years from some trouble in walking, but she could use her arms. She finally became dull and apathetic, and was admitted to the hospital. There was then a condition of mental dullness, slight facial paralysis on the left side, slight bilateral spastic paralysis, with exaggerated reflexes. A very slight hemi-anæsthesia to pain obtained on the left side.

The post-mortem showed a very œdematous brain, with flattening of the convolutions. The two frontal lobes were united on their median surface. Upon the anterior portion of the corpus callosum there was a tumor which measured from one to three centimetres in diameter, and which grew on both sides into the brain substance, so that the total diameter of the tumor was from five to six centimetres. The centrum ovale was somewhat involved, and the observer thinks that the process might have affected the sensory part of the capsule. There was evidently an extensive destruction of the calloso-marginal gyrus on both sides, with practically no anæsthesia.—Redtenbacher, *Annual Report of the k. Rudolf-Stiftung Hospital*, 1891, p. 66.

CASE XXII.—Man, aged 46. Tumor of the brain, involving the central convolutions of the left hemisphere. The patient suffered from local epilepsy, involving the right arm, and finally with a paralysis and anæsthesia of the right arm and leg.

Operation and removal of the tumor the size of a hen's egg from the middle of the two left central convolutions. The tumor was a sarcoma. After removal of the tumor sensation returned, and also some motion.—Dr. Carson, *Courier of Medicine*, 1891, p. 31.

CASE XXIII.—Male, aged 42. History: A blow on the head, followed by symptoms of the development of an abscess. Partial paralysis of left side, including face, arm and leg. Sensibility diminished in the left arm. Three days later, complete left hemiplegia, exaggerated reflexes, diminished cutaneous sensibility over arm, face and trunk.

Operation by Dr. Kelly. Trephining over the fissure of Rolando. A trocar was plunged downward and forward to the depth of two inches and six ounces of pus removed. Death followed. No record of nupopsy.—C. D. Roy, service of Dr. Peterson, *Southern Medical Record*, 1890, p. 456.

CASE XXIV.—Male, æt. 21. History of intoxication followed by aphasia with symptoms of dullness of tactile sensation in the fingers, the palm and back of the hand, and wrist. The whole of the right side, however, showed some defect in sensibility to touch, temperature, and pain, as well as of the muscle sense. Still it is stated that there was no ataxia in the right arm or hand. He could carry his right index to the tip of the nose, but he held the pen awkwardly and dropped it repeatedly. The

symptoms increased, some paresis and some right hemiplegia developed, and the dullness of sensation increased proportionately.

Operation of trephining over the Rolandic fissure. A large subdural clot was found; this was removed, and the patient got well.

The sensory symptoms are specifically described as follows:

"Sensation (tested with a pin) is somewhat dulled on the whole of the right side. The main dullness is in the fingers, the palm and back of the hand, and the wrist; it is less higher up to the elbow and shoulder, and much

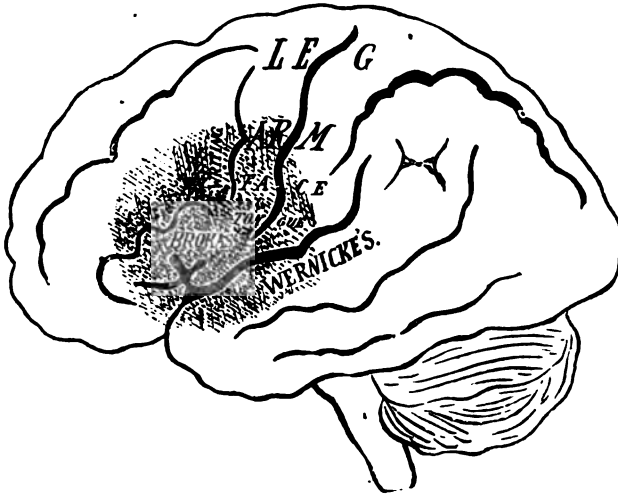


FIG. 12. CASE 24. Bremer and Carson. *American Journal of Medical Sciences*, Feb., 1892.

less in the face. But, as just stated, the whole of the left side, including the leg, shows a defect in common sensibility. The same is true of the sense of temperature and pain. Passive movements of the fingers of the right side are not so well perceived as those of the left, showing a lowering of the muscle sense. The passive movements of the toes on the right side, however, are correctly stated. There is no ataxia in the right arm or hand; without hesitancy he carries his right index to the tip of the nose, the eyes being closed, and puts with precision the tip of the finger on the point of a pin.

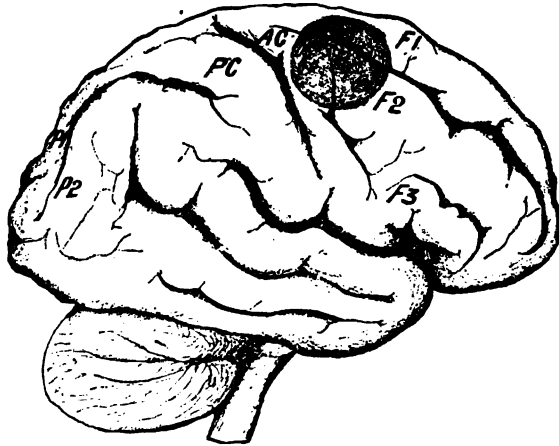
On the fourth day after the operation: "Sensation in

right arm still impaired. Sharp points on right arm recognized as two points one and a half inches apart, or fingers two inches apart. Unable to feel blowing of breath on hands or arm."

Discharged cured in three weeks.

The localization of the lesion is given as shown in the accompanying diagram. (Fig. 12.)

CASE XXV.—Male, *æt.* 60. History of the gradual development of a brain tumor with progressive left hemiplegia, most marked in the left arm. Sensation diminished in both arm and leg; at times both arm and leg would be almost devoid of sensation, at other times hyperæsthesia was complained of. Gradual development



CASE 25. Showing the localization of the tumor which was adherent to the dura mater.

of a complete hemiplegia with increasing hebetude, coma, and death.

Post-mortem.—A tumor, two and a half inches in diameter, was found involving the dura mater and the cortex of the middle of the precentral convolution and the posterior parts of the first and second frontal.—P. C. Barker, *New York Medical Journal*, June 25, 1892. (Fig. 13.)

Dr. Barker's words are, "Sensation diminished in both arm and leg. Dynamometer showed a loss of one-half in left hand." Later he adds, "The arm and leg became more paretic, sensation more disturbed. At times both arm and leg would be almost devoid of sensation (to pain and touch?); at other times hyperæsthesia was complained of."

An analysis of these cases shows first and indubitably that injuries and destruction of the motor cortex are accompanied by disturbance of cutaneous and musculo-articular sensations.¹ Before one can justly interpret the significance of these sensory disorders, we must agree upon some common interpretation of the significance of the tests used in making the examinations. My understanding of the matter and plan of proceeding is shown in the following paragraph. This may need some modification, but it will not, I think, be such as to essentially modify the conclusions.

I. The tactile sense gives us sensations of touch, impact, pressure, and of modifications due to extent and character of the surface, so that we recognize smoothness, roughness, etc. It is tested by bringing some object carefully in contact with the skin, or by pressure on the surface, or by the drawing rough and smooth objects over the skin.

2. The localization of objects touching the skin is done by means of an associative process, by which former experiences in touch are revived. In localizing an object the mental process is more complex than in simple appreciation of contact. While not strictly correct psychologically to say that tactile memories are revived, yet that term sufficiently expresses the idea. When a person loses his power of localizing a point touched, and thinks it is on the thumb when it is on the middle finger, he has a tactile amnesia.

3. The muscle-sense is dependent on the existence of sensory fibres in the muscles, joints and tendons. By it we appreciate the position of a limb, its active movements and its passive motions, *i. e.*, those made by another person. These sensations are tested in ways familiar to all, and their defects are shown in incoördination and inability to indicate determine weights and the position or degree of motion of a limb.

¹ I have not attempted in this paper to deal with the negative cases, in which cortical injury occurs without apparent sensory disturbance. The number of such cases becomes yearly less.

4. A more complex "sensation" is that known as active touch. It is the process by which one appreciates the nature of an object that is placed in the hand or on the skin. Thus the patient is made to distinguish between different coins, or between a key and a nail, etc. In this process both the tactile and muscular senses are brought into play, and here associative processes are called into play.

5. Besides these we get thermal and painful sensations, the methods of testing which are familiar.

Now, in looking over the records of cases, it will be seen that the sensory losses most often observed are those in which the patient cannot localize an object, and in which he cannot tell the nature of an object: that is to say, he loses the localization power and the power of associating muscular and tactile sense, the power of active touch (*Ziehen*). Fumbling and awkwardness are clinical characteristics of destructive lesions of the motor cortex.

It is the associative power which is first and most impaired. After this we find most often tactile anæsthesia, then analgesia, then simple muscular anæsthesia, and least often loss of temperature sense.

This is in accordance with the evolutionary doctrine that the higher and more complex functions are more differentiated, more localized, and first affected by disease.

The simple tactile sensations are very diffusely represented in the cortex, and small lesions affect them slightly and temporarily, but the localizing power, depending on tactile memories, and the "active touch," dependent on motor and tactile memories, are each associated with the special cortical motor centre for the particular part.

In small cortical lesions, therefore, we have (besides the paralysis) a kind of amnesia, which may be compared to the motor aphasia which results when Broca's centre is destroyed.

Naturally, before a set of motor nerve cells is discharged in a voluntary movement this discharge must be

co-ordinated and set off in a definite manner. The skin-muscular sensations stored up as memories² regulate these voluntary and automatic movements just as the word-memories regulate the organs of articulation. In cortical lesions there is then a skin and muscular "amnesia," and the patient with a cortical lesion is practically a case of motor-amnesia, so far as localization and certain purposeful movements in the affected part are concerned. The application of the same psychology to the central convolutions that is applied to that of Broca solves, as it seems to me, the much-mooted question of the motor-cortex and its functions.

The other and concomitant symptoms of analgesia and thermo-anæsthesia can be equally understood on this hypothesis. Painful and thermic stimuli help in teaching the motor-cortex to discharge correctly and purposefully. Pain and thermic memories would naturally cluster around memories of contact and motion, yet they are less specialized, less important, less effective.

The muscular sensations have their cortical representation, probably in the inferior parietal lobule and its neighborhood. But the awkwardness and fumbling movements in lesions of the central convolutions can be explained by the view I have suggested, that muscular memories or association processes are represented measurably, at least, in the motor area.

It does not follow from what I have said that I subscribe to the doctrine of Bastian and others, who believe that the central convolutions are sensory centres. They are essentially motor. Nor is it enough to say that the motor-cortex is sensori-motor, for this does not imply the fact that the cortex represents not only sensations, but also memories of sensations. It is, in fact, a sensory-memory-motor organ.³

² As already stated, the term *memory* is used to make the description harmonize with our ordinary terminology in describing the effects of cortical lesions.

³ The terms, "*perception*" or "*association-revival*," areas are perhaps more strictly correct from the psychologist's standpoint than *memory* areas. But the word, *memory*, as ordinarily used by neurologists, answers the present purpose.

THE MANAGEMENT OF CONVALESCENCE AND THE AFTER-CARE OF THE INSANE.¹

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THE dangers besetting convalescence from attacks of insanity, and the precautions necessary to prevent relapse or to prolong remissions, as well as the care of this class of patients during the critical year or two following recovery, are important enough to receive special attention.

Disregard of general advice as to prevention of insanity in the person and offspring of the predisposed:—

'The soundest arguments and the most appalling examples have long been furnished us, of the results of disobedience of natural laws by the marriage of the mentally unfit. We are also told a great deal of proper physical and mental training, and the best of rules are given for the guidance of those who are delicate mentally through hereditary or acquired predisposition. But we all know how little general rules for the prevention of insanity appeal to the individual until the incipient symptoms of that disorder become evident, when it is usually too late to help. Often, to be sure, actual prevention by the most painstaking individual care, from the first, would be impossible in subjects saturated with hereditary taint, even could we foresee with certainty upon which individual of a family the blow would fall, as the diminishing capacity for normal mental life, would sooner or later find its limit. But it is certainly reasonable to expect that proper precautions as to education and manner of living, would be the direct cause in setting that limit farther ahead.

¹ Read before the American Neurological Association, Washington, D. C., May 31, 1894.

Patients alive to danger only after experiencing an attack:—

Physicians are seldom consulted on such possibilities, and when through fear or duty the subject is approached, the fact of previous insanity in the individual or his family is concealed or belittled by the relatives, and delicate mental health either threatened or feared is ascribed to other causes. But when once an attack has occurred both relatives and patient are for a time at least amenable to advice and, indeed, sometimes over-cautious. Here, then, we have a field of real usefulness in the way of preventive treatment, and we may be reasonably sure that our advice will be followed in the main, in the case of intelligent patients. If this be given before the patient leaves the physician's hands, with the object-lesson fresh in mind, such counsel is likely to be remembered and acted upon.

If, then, as is generally admitted, prevention of a possible attack in persons who are merely predisposed to insanity, is so important that no physician would neglect the rare opportunity to help, how much more vital and practically helpful is the duty of endeavoring to ward off attacks from those whose minds have already been disordered, and who will welcome and heed advice directed toward the prevention or delay of a recurrence of the dreaded malady.

Management of convalescence often determined the question of second attack or length of remission:—

We have often been impressed with the power for health of longer or shorter duration or for confirmed dementia that has lain in the manner of conducting convalescence from mental disease. Beyond protecting them from harm to themselves and others, and administering to their bodily needs, we can often do little for the insane in the early stages of an attack of acute mania or melancholia. It is when the severity of the attack has passed and the weakened mind and, perhaps, still partially perverted senses are endeavoring to readjust themselves to the old impressions and experiences, that moral or psychical treatment is of real use, and when the

right influences and surroundings are all-powerful for the health of the mind.

In the case of sane patients who are phthisically inclined we take pains to give the most careful directions regarding exposure, fatigue, diet, change, etc., in order to prevent the return of alarming symptoms; yet how seldom is similar caution given to the convalescent or recently recovered insane person.²

This preface seems called for to answer possible criticism for presenting a subject which in itself seems to have been thought hardly worthy of attention in medical literature. We know of but one (a recent work)³ which gives separate consideration to convalescence, a period when, by the way, the insane frequently come into the hands of the family physician or neurologist.

Short convalescences and sudden recoveries:

Instances of abrupt recovery with practically no convalescent period do occur on rare occasions, and it is well to bear in mind such a possibility. They may be looked for chiefly in cases of short duration (a few months for example) which have a neurasthenic basis, history and symptoms of overstrain, etc. Acute confusional insanity, transitory mania and melancholia have been the more common forms, although cases of acute paranoia are reported.⁴ So also the toxic and neurotic forms, as might be expected, viz., alcoholic, hysterical and epileptic insanity. It would seem that physical complications sometimes affected not only the suddenness but the fact of recovery. Headache, backache, indigestion, etc., are favorable signs even before actual convalescence becomes evident in noticeable mental improvement. Sudden cures following intercurrent pleurisy, erysipelas, fevers, hæmorrhages, injuries, attempts at suicide, we have all heard of. It is, however, doubtful how much diseases and shocks are a help in insanity, although they no doubt exert a distinct influence in certain cases.

² See page 796.

³ Hand book of Insanity.—Kirchoff, 1893.

⁴ Peretti, Allgemeine Zeitsch für Psych., xlv, 1889, p. 62.

Lucid intervals; spurious convalescence:—

With experience, however, we become sceptical of sudden returns of reason, gradual improvement being the almost invariable rule and slowly advancing recoveries the more certain. Spurious convalescence is common, however, and very deceptive. A recent case in the writer's care, on two occasions awoke in the morning after a disturbed night and long season of violent mania, apparently entirely rational and cognizant of much of her morbid experience. She resumed her ordinary habits of life in the household. The first interval occurred at home, and lasted a day or two; the second at "Woodbourne," and lasted a week or ten days under enforced quiet. Both intervals, however, were followed by intense excitement, which appeared with equal suddenness. These intervals are very deceptive, and embarrassmen and disappointment to all concerned will often be saved, we have thought, and a premature prognosis avoided by the observation of the patient's sleep, as we have always found in such intervals that the sleep continued to be no better, if it did not grow actually poorer, at such times, however much the patient's appetite, strength and control may have been improving. Careful observation will sometimes, also, reveal smouldering delusions or hallucinations ready to break out at any time. Where the attack has been maniacal there is apt to be, also, an undue restlessness or vivacity at this time which is foreign to the patient's normal condition. Lucid intervals are not without significance, however, as they have appeared in the course of many cases that have made good recoveries.

Signs of true convalescence:—

The cardinal symptoms of true convalescence—improvement in sleep, general health, composure and interest, recognition of former delusions as such, mental improvement keeping pace with physical gain, return of menses, etc.—are well known, but there is, to our mind, no surer sign (and it is by no means uncommon) than the cessation of decided fear of a return of the attack, and of

the patient's mortification at the supposed stigma which their insanity has fastened upon them. It is no uncommon thing for patients to speak and write to their friends with freedom of their recent experience, and even of the place where their disorder has been treated, as if it had been a physical disease. While it is to a large extent true that for a time such a patient is looked at askance by others as having been once insane, the patient himself has rarely such mortification as would be supposed to follow. We have confirmed this view by frequent inquiries.

Importance of familiarity with the immediate prodromata of an attack and minor conditions natural to the patient in health:—

In estimating the value of symptoms which are apparently those of convalescence, a knowledge of the patient's mental and physical condition immediately preceding the attack is important. The favorable changes noticed in disposition and character are familiar to all, but not enough stress has been laid, we think, upon ailments to which the patient had always been subject in health, but of which there was no evidence during insanity—for example, "nervous headache," backache, digestive disturbances, etc. For guarding against relapse a precise knowledge, also, of the *sequence* of prodromata in individual cases is especially useful, as an attack often passes off in repeating the steps of progress to insanity in inverse order. A convalescing patient of the writer's is now experiencing, for a second time, the severe occipital headache with which her attack was ushered in, and has just weathered the prodromal nightmare which in the beginning preceded the headache.

We have very rarely found it to be the case that convalescence, whether slow or rapid, is uninterrupted. Backward steps, so decided sometimes as to point to relapse, are more than likely to mark the road to recovery.

Danger of overstrain in mental application during convalescence from acute mania:—

It is not an unfrequent wish on the part of the patients

and their relatives that the mind may be stimulated and strengthened by light study and mental application of different kinds early in convalescence. This is liable to be harmful where the patient has been under the strain of intense morbid over-activity of the brain, as in cases of acute mania. It is often difficult to restrain such patients when they feel the return of their old energy and desire for work which, perhaps, was never properly controlled in health. Piano practice, which is often a strain on young and healthy minds, application to petty pieces of work involving much contriving, are not unfrequently followed by headache, lassitude, depression and a bad night, while interesting effort of a light kind in the open air requiring no special mental application, would be actually beneficial. Convalescents from melancholia, on the other hand, often require to be roused and stimulated, but there is danger of pushing even these patients too far if they manifest much opposition. A return of interest in life cannot, as many think, be forced. It should rather be courted and fostered where it appears.

Many convalescing cases, especially of confusional insanity and mental disorder following *la grippe*, must be treated on lines identical with those of nervous exhaustion. It is a great boon to such patients to be kept under the doctor's care, in order that they may have their confidence strengthened by frequent assurance and advice when the bad days or moments come, avoiding, however, carrying protection too far and fostering self-distrust in the patient's powers to the extent of hypochondria and invalidism. At the period of menstruation, particularly its end, the utmost quiet and rest is necessary for the patient convalescing from insanity, especially when one has had periodical exacerbations during the attack. This obvious precaution is often neglected.

Cases in which stay in asylum should be prolonged —

We are now brought to the question of time of discharge from the physician's supervision, whether from the

asylum or other separate care away from the family. In the bulk of cases influence should be exerted by the family physician or other consultant against too early removal home or elsewhere, especially in melancholia with suicidal tendencies, no matter how remote, and in almost all cases of acute mania. In the latter, if at all possible, it is best to wait until recovery is complete, so great is the importance of rest to mind and body after the exhaustion peculiar to this form of insanity. Here travel and distraction are distinctly injurious during convalescence. But if such convalescents come under the care of the general practitioner he will protect them from all external irritating influences and when necessary secure complete quiet by sedatives. It is usually unwise where the patient is poor or in moderate circumstances to make a change during the remissions which occur in the course of general paralysis of the insane. The improvement is often however, so striking that it is difficult to persuade relatives of this. Even change to new but quiet surroundings, so beneficial in many cases in hastening recovery, is to be deprecated during convalescence from acute mania, owing to the difficulty of proper accommodation to new experiences and consequent tendency to mental disturbance.

When early discharge is desirable:—

But although delay is the usual and safe rule for the mass of insane convalescents, early removal often has a good effect in carefully selected individual cases, particularly melancholiacs. Homesickness often becomes during convalescence a fixed idea, or delusion otherwise, and the patient opposes treatment, sleeps poorly and loses flesh. When refusal of food has been a prominent symptom and the patient has begun to show material gain in other ways, early removal may be followed by his beginning to eat. The following is a case in point:

Merchant of 56 years of age, of high character and good ability—slight neuropathic heredity. No previous attack. About three years ago he came under the writer's care for

an attack of melancholia, with delusions of suspicion, of a few weeks' standing. He believed, without reason, that he had lost a large amount of money, that business and other friends distrusted and avoided him, etc., etc. Talked of committing suicide by drowning. Became uncommunicative and indifferent to his personal appearance and surroundings. Was greatly depressed and quite restless. Slept and ate but little. Soon suspected conspiracy on part of his family, refused to look at his letters and rapidly developed delusions of persecution and attempts to poison him by tampering with his food. Had slight hallucinations of sight. Resisted determinedly all attempts to dress and otherwise care for him. The usual threats of forced feeding and the various devices for encouraging voluntary eating failed and it became necessary to resort to feeding by tube. He remained for eight months without showing much gain except in physical condition, requiring to be fed artificially four times a day. He was morose and constantly on his guard, but was willing to go to drive and to walk. Did not recognize or feared to address even the members of his family. After several fruitless visits from his wife he at last spoke freely to her and appeared entirely rational on all points regarding home, family and business, but continued suspicious of physicians and nurses and believed that the walls of the house were about to fall in upon him. Utterly refused also to take food at request of his wife. She was accordingly directed to have a meal prepared and sent from the city. She and her daughter were then to dine with the patient in the grounds at a distance from and out of sight of the house. The experiment succeeded perfectly, but on his return to the house he made the usual opposition to taking a meal. I advised complete and immediate change, as his dangerous tendencies had disappeared and his remaining delusions referred only to the place where he was being treated. He was accordingly taken, in a few days, into the country and thence, after a few weeks of steady improvement, to his home in the West, where he soon recovered. He has remained well for two years. Here a complete and favorable change of surroundings early in convalescence at least facilitated recovery if it did not actually prevent the setting in of confirmed delusional insanity or dementia.

Other cases are the querulous convalescents, with

morbidly increased anxiety about their health, finding new ailments each day. To such harm may come from the absence of change. As does Schüle, we occasionally meet with certain cases of mania of the reasoning type, *mania mitis*, who are irritated by asylum discipline, also protracted cases of mania who, even while convalescing, are independent, behaving badly because they are "in an asylum" and who feel that they may do as they like. The pressure of outside life steadies them and hastens recovery. A convalescing patient may also be removed earlier from a large institution, with its necessary restrictions and unfamiliar sights, scenes and surroundings, than from a smaller establishment where the life and surroundings are of a more domestic and natural kind, and where the gradual steps to normal ways of living may be taken while the patient is still under medical supervision. The nearer we approach to caring for and treating individually the insane patient, whether public or private, the more we appreciate the value of change to different and more natural surroundings when convalescence in the curable and mild dementia in the chronic insane sets in.

Recovered patients ; their critical condition for the first year after discharge—Precautions necessary:—

When the hospital is left behind, even after full recovery, the situation is often quite as critical, particularly for those who are poor or in difficult circumstances, for whom the adoption of special means of relief will be urged later. The first year after recovery is a most critical time. To prevent a recurrence of an attack, the previous one will often be a serviceable guide, and the question may come up as to the real cause and how it can be prevented from giving rise to another. If childbirth has been the cause there is a strong likelihood that no matter how good the recovery, a second parturition will be the source of another attack of insanity. Here it is plainly one's duty to point out the dangers of pregnancy, especially in cases where there have been two or more attacks of puerperal insanity. (Blandford). Oc-

casionaly the means taken to lessen the severity of labor has seemed to be of service in aborting or modifying an attack. We have often to decide what, if any, occupation a young man should follow, and whether another should restrict, or abandon his former work. Well-defined cases of periodical insanity are apt to recover thoroughly, and in point of strength, control and rationality, seem to fully regain their health. It has been thought, however, that the short prodromal stage of physical symptoms, which is the counterpart of the same stage in preceding attacks, may be so treated by change or the administration of bromides that a relapse will be warded off. This is questionable, although some relief appears to have been given by these means. The cases of insanity which will not be benefitted by occasional visits to the physician during the first year or so after recovery are few. Many a growing depression has been prevented thereby from going farther. Finally, also, all the usual general rules for the prevention of insanity apply, obviously, with ten-fold force to those who have been once insane, or who are experiencing a remission in the course of general paralysis of the insane, and need not be repeated here.

Absence of any provision for the after-care and assistance of recovered and improved pauper patients discharged from asylums:—

It is now in order to show what has been done abroad and should be done in this country to aid the pauper insane on their discharge from hospitals. The work has been comparatively recent, and, as in other reforms for the sick and defective classes (barring the case of epileptics), the insane have come last. Most well-equipped *general* hospitals have convalescent departments, far removed from the main buildings, not to speak of the out-patient departments for the patient to return to in case of alarm on the reappearance of his or her physical trouble. Of the very numerous convalescent homes and retreats at the command of charitable organizations not one is for the insane. Offenders discharged from prisons and reforma

tories have long been encouraged and aided by societies for their relief, but the lunatic, apart from cottages on the premises of institutions for the insane, where a few convalescents are placed among mild cases of chronic insanity, or houses by the sea-shore in connection with a few private institutions—with these exceptions—there is nothing approaching special provision for convalescents from insanity. For the insane who have been discharged wholly or partially recovered, no means of supervision or assistance whatever are provided in this country, although their malady in itself alone is serious and disabling, even when not accompanied (as it often is) by physical debility or disease.

Absence of adequate advice to patients leaving hospitals:—

In States which are blessed by more charitable legislation, patients are, to be sure, given a new outfit of clothing, or perhaps a sum of money, but this is the utmost they receive. There are few institutions, moreover, where it is the rule to give precautionary advice to departing patients and their relatives. They receive, at best, a few general directions, while it oftener happens that their discharge is unknown to the physician except by report.

Means employed for the after-care and assistance of pauper patients in foreign countries:—

A short review of what is being done in other countries in the way of the after-care of patients discharged from asylums, will best make clear the demand and reasons for such care, as well as the methods best adapted to secure it.

By the direction of the French Government, societies for the supervision and aid of insane patients on their discharge from asylums, are now being formed throughout that country. In a circular sent two years ago to the different prefects, the Minister of the Interior called attention to the fact that asylum physicians often hesitate to set certain patients at liberty, whose mental condition seems to have so far improved as to make it useless to keep this class (or even those who have recovered), longer

under treatment for fear that thus suddenly thrown on their own resources without oversight or, perhaps, without means of support, they will fall back into the old habits of life which gave rise to their insanity. This is particularly the case with those who, as often happens, are prevented from obtaining employment simply because they have been inmates of an asylum.

He advised that protective societies be formed for the oversight and assistance of such insane persons, through the first phases of their return to ordinary life.

The Superior Council of Public Charities, in the course of an inquiry into the proposed revision of the lunacy laws of France, have recently formulated a series of recommendations regarding these *Sociétés de Patronage* (aid societies), which are in effect as follows :

That the Minister of the Interior urge the various prefects to encourage the formation of societies for the purposes above described, in every possible way, in all the departments.

That it shall be the office of these societies to aid convalescent or recovered patients by the following means: gifts of money, clothing and tools (this assistance to be weekly, monthly or quarterly), redemption of articles in pawn, payment of rent, admission to convalescent homes in cottages intermediate between confinement and complete freedom, or in hospitals or houses of refuge; finding situations for them in workshops, business houses, on farms, etc., and, finally, their supervision in whatever place they are employed.

That these societies be authorized to invest the savings of the insane and remit thereto the interest.

That the different societies be encouraged to co-operate.

The Minister expressed himself as heartily in favor of and ready to carry to consummation the views of the Council, and called for speedy information from the prefects as to the result of the operation of the project as well as suggestions for its furtherance. In consequence much has been done in France in this direction in the way of after-care since that time.

This general work throughout the entire republic is the outcome of other forms of after-care in operation in France since 1841, when an after-care association was formed for providing protection, assistance and homes, for poor insane convalescents, on leaving institutions for their treatment. It was founded by Dr. Falret. It was and is confined, however, to the department of the Seine. Its benefits are bestowed through three principal channels. (1) A central convalescent home the inmates of which are exclusively poor and friendless female convalescents. Their sojourn is temporary, not exceeding five or six weeks, during which time they have the advantage of kindly ministrations, and on leaving they are invited to revisit the home. (2) Another form in which after-care is exercised is in the *Rénios du Dimanche*. That is, on Sundays the "Home" welcomes as guests a certain number of mental convalescents, who may desire to spend some pleasant hours in the institution, where they lived for a season. Their children are welcomed; husbands often accompanying their wives. They are hospitably entertained and attend chapel service, walk in the grounds, etc. In the year 1888 1,441 persons, men, women and children, were received as Sunday guests into the home. (3) Assistance is also rendered to mental convalescents by visits to them in their own homes, especially in cases where occupation, illness or other causes, prevent them from coming to headquarters. The number of such domiciliary visits paid in that year was 845.*

In England the subject did not come up until 1879, when a paper by the chaplain of the Middlesex Asylum, Colney Hatch, on after-care appeared in the *Journal of Mental Science*. In that year the first meeting of the After-care Association was held. Its object was announced to be to facilitate the readmissions of female

* For further information of the operations of the After-Care societies in France the reader is referred to an excellent and more detailed account from the pen of Dr. Victor Parant, of Toulouse, which appeared shortly after this paper was read in the *American Journal of Insanity* for July, 1884.

convalescents from lunatic asylums into social and domestic life. It appears that not until 1886 was there any practical work attempted. Working associates were then appointed, of which there are twenty, for the purpose of finding suitable homes for convalescents and visiting and reporting upon their temporary inmates. They also follow them up either to the poor-houses to which they have been discharged or to their own homes. Homes have been found where convalescents have been boarded out, the patient's oversight being entrusted to some lady in the neighborhood, and the homes are inspected before any case is sent and afterwards by a voluntary inspector. Nearly one hundred cases were helped since 1886, while during the years of 1888 and 1889 forty cases were brought before the committee. In nearly every case assisted suitable employment was afterward found. A large number of cases not coming under the rules of the association have been helped to obtain relief through other channels.

In Switzerland there exists a system of after-care in several cantons. Aid is given to convalescents from mental disorders by endeavoring to provide occupation, by pecuniary assistance varying from fifty to one hundred francs. The persons discovering cases in need of treatment report to the secretary. A voluntary subscription of two francs annually from individuals, supports the institution fund. These societies are much valued by the medical superintendents of the Swiss asylums.*

It really would seem an opprobrium that in our country convalescents from mental disease should receive only scant advice and practically no care on leaving asylums, and it would also seem that a public duty devolves upon the medical profession, especially those interested in mental diseases, and the fullest methods for their relief, to further such after-care. Certainly there can be no better object on the ground of humanity and public economy than practical effort toward a provision which may be a help in preventing the increase of insanity.

* The above accounts are taken from Tuke's Dictionary of Psychological Medicine, and the Archives de Neurologie for 1882.

Periscope.

EXCERPTS WILL BE FURNISHED AS FOLLOWS:

From the Swedish, Danish, Norwegian and Finnish:

F. H. PRITCHARD, Norwalk, Ohio.

From the French and German:

L. FISKE BRYSON, M.D., N. Y.

BELLE MACDONALD, M.D., N. Y.

PH. MEIROWITZ, New York.

R. K. MACALESTER, M.D., N. Y.

From the Italian and Spanish:

WILLIAM C. KRAUSS, M.D., Buffalo, N. Y.

From the Italian and French:

E. P. HURD, M.D., Newburyport, Mass.

From the English and American:

A. FREEMAN, M.D., New York

The Editor will not accept as ORIGINAL ARTICLES and CLINICAL CASES those that have appeared elsewhere.

Authors are requested to make none but typographical corrections on the proof sent to them. The manuscript must represent the final form in which the article is to be printed.

PATHOLOGICAL.

Angina Pectoris.—P. Watson Williams, M.D., London (*The Practitioner*, Feb., 1893). In many cases arising from disease implicating cardiac nerves and those due to reflex irritation, the primary cause cannot, of course, be removed; but when the instability of the nerve structures is induced by the presence of toxic matters in the circulation, such as nicotine directly, the accumulation of waste matters that the kidneys fail to eliminate indirectly and so forth, much help will be afforded by regulating the habits or diet. Every condition of life tending to induce persistent increased arterial tension should be avoided. In the majority of cases in which irreparable pathological conditions, necessitate a high arterial tension, the administration of such rem-

edies as will give tone to the nerve structures implicated and thus lessen their instability will be beneficial, especially arsenic and strychnine. There is a close analogy between angina and asthma. But strychnine possesses equally an elective affinity for the vasomotor and cardiac centres of the medulla and its beneficial action in angina is explicable in a precisely similar manner as its action in asthma. When the persistent high tension may be regarded as conservative, strychnine, and even digitalis will, by giving tone to the nerve centres, aid the heart and neuro-vascular mechanism to perform the task of maintaining arterial tension. In the majority of grave cases of angina, the attacks can only be warded off by the continuous exhibition of the nitro-glycerin class of remedies. But it is possible that the too frequent resort to drugs which render futile any physiological effort to raise the arterial tension, may result in increasing the malady. These remarks apply especially to renal affections, but the principal holds good also in the earlier cases of angina pectoris. As we now regard cardiac hypertrophy as a friend rather than a foe, may we not also regard arterial high tension in a friendly light. In reference to angina, this can only apply in a limited sense, but there are very few cases where nerve tonics are not in the long run more beneficial than nerve sedatives.

On the Sensory Tracts in the Spinal Cord.—

By Prof. W. von Bechterew (Neurolog. Centrbl., No. 18, 1894). Experiments performed by Dr. F. Holzinger on dogs in the laboratory of Prof. v. B. gave the following results as regards sensation: Sections of the lateral portions of the cord in the dorsal region produced a bilateral hypæsthesia in the parts below the sections, which disappeared in the course of a few days.

Section of the posterior columns, gray substance and anterior columns were not followed by analgesia; a negative result was also obtained after section of the anterior columns and horns and of the anterior portions of the lateral tracts.

Isolated sections of the layers bordering on the horns also gave negative results.

Complete analgesia was only produced by section of lateral columns, or of the posterior parts of the cord, the division extending somewhat anterior to the pyramidal tracts.

In those experiments which involved section of the

posterior columns, anæsthesia of the touch and the muscular senses were also produced, as well as ataxia.

P. M.

Dr. H. Gradle, in an article on "*The Cause and Treatment of Migraine*" (*Méd. Mod.*, May 19, 1894) is of the opinion that astigmatismus is the most frequent cause of migraine, as is found in half the cases. After astigmatismus, hypermetropia, affections of the nose, and intestinal catarrh are referred to as rarer causative factors. The treatment must be directed towards the cause. G. recommends cannabis indica as being a genuine anti-migraine drug.

R. K. M.

The Significance of Frenkel's Method in the Treatment of Tabes Dorsalis.—By Prof. W. von Bechterew (*Neurolog. Central bl.*, No. 18, 1894). In nearly all of the cases treated according to this method a greater or less improvement in the gait was manifest. In some of the cases the results were positively brilliant. The results permit of the following conclusions: 1, that the atactic motor disturbances in tabes may be materially improved by Frenkel's method. 2. That sensible gymnastics improve and restore the muscular strength in the affected extremities. 3. That the exercises improve the co-ordination; and 4, that self-confidence, the absence of which often aggravates the disease, is aroused. In addition, it was observed that the muscular sense and Romberg's symptom were improved, while the Argyl-Robertson and Westphal phenomena remained unaffected.

P. M.

Dr. G. H. Pierson in an article on "The Relations of Syphilis and Paresis" (*Centralbl. f. Nervenheilk. u. Psych.* June, 1894), gives the following data: Total number of cases 126. Of 119 males, 72 (60½%) were undoubtedly, 16 (30%) probably syphilitic; together, 88 (73%). Of 17 females, 3 (43%) were doubtlessly, and 2 (28.5%) were probably syphilitic.

R. K. M.

In an Article on Neurasthenia and Degeneration.—Dr. P. Kovalevsky (*Bull. de la Soc. de Méd. de Belgique*, September, 1893) defines neurasthenia as a condition of irritability of the functions of the nervous system, and distinguishes two classes: (1) Neurasthenia of the intellectual sphere, and (2), neurasthenia of the sentiments and passions. These two varieties may often be combined. Neurasthenia may heal, or degenerate into some other mental or nervous affection.

Paranoia is the most frequent sequela of degenerative neurasthenia.

R. K. M.

The Nervous Troubles of Alcoholism.—In the *Deutsche Arch. f. Klin. Med.*, p. 603, 1893, Freyhan makes the following statement: The most frequent nervous manifestation of alcoholism is alcoholic neurasthenia, characterized by abnormal excitability and rapid exhaustion of the various spheres of the central nervous system. There are muscular contractions and tremor; disagreeable sensations, as of heat, fatigue, formication, pain in the calves of the legs; increased sweat, exaggerated reflexes and ankle clonus.

L. F. B.

Respiratory Troubles of Neurasthenia.—Coulampis, 1894, makes this the subject of his *These de Paris*. Purely neurasthenic respiratory difficulties have hitherto been ignored or relegated unwisely to the realm of hysteria. Neurasthenia can affect the respiratory apparatus as well as other special parts of the organism. Its manifestations are: cough, probably reflex, a characteristic dyspnoea, and occasionally hæmoptysis.

L. F. B.

CLINICAL.

A Case of Traumatic Tetanus which Recovered Under Antitoxin Injections.—H. L. Evans M. B. C. M. (*British Med. Jour.*, September, 15, 1894). A boy, aged 13 years, cut his knee by falling on the road, some of the dust being imbedded in the wound. Five weeks later he began to experience stiffness in the back and pain between the shoulders. The following day the pains were worse, and there was some difficulty in mastication. Later, the head became drawn back, and he would cry loudly during the spasms. He could not open the teeth one inch, and the jaws closed on attempting to protrude the tongue. The wound was freely excised and chloral and bromides given, but his condition grew worse. Chloroform was then administered, and twelve minim injections of Tizzoni's tetanus antitoxin were introduced under the skin of the abdomen and inside of the thighs. The injections were made soon after seven P. M., the temperature being 99.8°. By nine P. M. it had fallen to 98.4°. He was ordered nepenthe mvii, acid hydrobrom. dil. mx g. 4 hours, if in pain. The next day the spasms were less severe, the head was less drawn back and he could open his mouth better. During the next three days the spasms caused little trouble, but

towards midnight slight pains and spasms occurred every five minutes, from his not having been kept sufficiently quiet. Three injections under cocaine were made in each arm, the temperature falling to 96.6°. From this time there was no return of the spasms, and general improvement took place, which was continued, but with a view to hastening the cure, two more injections were given. The mouth could be opened to its full extent. Voice and mastication were normal. The knee-jerk, which a few days after the first injection was found to be absent, had now returned. In all, not more than four and one half grammes were used. A. F.

Paralysis Agitans in a Young Subject.—The *Lyon Medical* (April 8, 1894) contains a case of paralysis agitans, observed by Dr. M. Lannois, in a boy aged 18 years. The onset dated back to the age of 12 years, when the patient was afflicted with measles. The *status præsens* is described as follows: The tremor is more marked in the upper extremities, it is regular, rhythmical and is increased by emotion, by heat or cold; the oscillations are 8 to 9 per minute; in the lower extremities the tremor is the same; if held by the shoulders a light tremor of the whole body is felt, which is transmitted to the head. When walking, the attitude is typical, with fixed head, the body slightly inclined forward the arms hang alongside of the body with supinated hands, and the thumbs are in apposition with the other fingers. In the erect position the tremor of the body soon becomes exaggerated. Patient has marked sensations of heat. His mental and physical development is arrested, he impresses one as being about 11 or 12 years old. Similar cases in young subjects have been described by Duchene de Boulogne, Fioupe, Merchede and Huchard. R. K. M.

Dementia Paralytica sine Paralysis.—Under this title Dr J. Belkowsky (*Centralbl. f. Nervenheilk. u. Psych.*) describes a case of paresis in which there was no evidence of paralysis of any peripheral motor-nerves.

R. K. M.

Another Case of Acromegaly with Temporal Hemianopsia—By E. Asums (*Arch. fur Opthal.*, 39, 2). The hypertrophy of the hands, feet, nose, lips, tongue and maxilla began at the age of 40 years. The patient is now 63, has a diminution of the field of vision, and beginning atrophy of the optic nerve, which point to a hypertrophy of the hypophysis. R. K. M.

Primary Sarcoma of the Cerebral Ventricles.

—Drs. V. Prautois and G. Etienne (Arch. de Neurol., April, 1894) observed a patient, aged 13 years, who at first presented symptoms of tuberculous-meningitis, but later on the diagnosis of (probable) cerebral tubercle was made. The autopsy showed all the ventricles to be invaded by neoplastic products, which, on microscopical examination were found to be sarcomatous. R. K. M.

Hydatid Cyst of the Brain.—Operation, Recovery.—Dr. Esteves presented to the Medical Society of Argentine, May 11, 1894, a patient of forty years who had been operated upon for cerebral tumor. The symptoms began about one year previous in epileptiform attacks, followed by a paralysis of the left arm, then of the left leg. Later on the attacks became general, and in August, 1893, he entered the hospital San Roque, Buenos Aires. There were present besides the paralysis of the left side, atrophy of the muscles of this side, besides intense head pains and vomiting. The mixed treatment proving of no avail, an operation was determined upon, as the condition of the patient was becoming serious, a semi-comatose condition developing rapidly. The author diagnosed a hydatid cyst in the right motor region, and trephined in the region. Upon inserting a hypodermic needle a clear amber-colored fluid was withdrawn. The cyst was then opened and found to be as large as a small orange. Inserting a drainage tube, suturing the dura, and closing the wound, the patient recovered in a very short time.—*Semana Medica*, Buenos Aires, All. I, No. 18. W. C. K.

A Case of Polioencephalitis Hæmorrhagica Superior (Wernicke).—Jacobus (*Deutsche Zeitschr. f. Nervenheilkunde* Vol. V., 1894). The patient, an alcoholic, had been ailing for some time with paresis of and pain in the upper and lower extremities. When taken into the hospital was confused and talked rubbish. Examination showed paresis of the upper and lower extremities, some atrophy of the left leg, soreness of the muscles, and loss of the patellar reflex. A few days later there was noticed a complete double-sided ophthalmoplegia; no ptosis, no pupillary change; loss of expression and slight left side facial paralysis. Patient became more apathetic, and died two days later. *Post mortem* examination of the brain showed the lateral ventricles, as well as the third ventricle, the aqueductus Sylvii, and the fourth ventricle to be the seat of innumerable punctate hæmorrhages. The tissue itself was smaller, of a dark

red color and abnormal softness. The medulla cordis were not examined microscopically. The peripheral nerves showed degenerative changes of an interestial type. The writer believes that we cannot divorce peripheral neuritis from diseased changes in the cerebral organs. The opinion of Strumpell that the same causative influence that produces the neuritis can call for the destructive changes in the central nervous system is concurred in.

J. C.

Mental Disturbance as a Cause of Herpes Zoster.—Anthony Roche, M. R. C. P. I., *British Med. Jour.*, Oct. 20, '94. A lady suddenly received news that her husband had been ordered to India. The next morning herpes was noticed on her left side. An old gentleman learned that a firm in which he was interested had failed. The same evening herpes appeared on his left side. A lady was much distressed at the sudden illness of her son. The following morning the spots were marked. A child aged six, of remarkably equable temperament, was for once disobedient, and sent to bed as a punishment. She cried much during the night and the next morning herpes was apparent. A lady, whose only son was shortly to be married, developed a well-marked herpes zoster on her left side, which she herself ascribed to grief at the loss of her son. In this last case there were pains in the side for several days before the appearance of the spots.

Hysteria.—A. Stodart Walker, M. B. (*Edinburg Med. Journ.*, October, 1894), contributes a very interesting article on 'hysteria' with special reference to this disease in the male and its connection with specific organic trouble of the nervous system. He believes the co-existence of hysteria and syphilis is a marked and definite one, but is not prepared to say whether the particular recognition of one existence of these "hysterical" conditions in specific disease is accompanied by the fact that we are careless of recognizing the same taint in all other nervous organic conditions. He believes this probable, and advises to follow the example of the French, and keep a sharper lookout for symptoms of an "hysterical" nature.

A. F.

PSYCHOLOGICAL.

Uræmic Insanity following Traumatic Stricture of the Uret r.—In the *Archives de Neurologie*, July, 1894, Cullerre reports a case of insanity evidently due to retained urinal products. There was a neuropathic family history, and alcoholic excesses of ten years' duration

as a direct personal factor in the development of mental unsoundness, which manifested itself in this particular instance as acute melancholia with hallucinations and morbid impulses. There was high fever, dry tongue, clay-like complexion and complete anorexia. With improvement in the general condition, brought about by appropriate surgical and medical procedures, there was also a parallel change for the better in the mental state. Alcololism occupied a subordinate place as a factor in this case although there had been earlier an attack of delirium, tremens. General disturbances due to uræmic poisoning produced the mental deviation. The author has called attention in a previous brochure to facts concerning insanity that is the outcome of renal disease.

L. F. B.

THERAPEUTICAL.

The Elimination of Lead in Chronic Lead Poisoning.—J. Dixon Mann, M.D. F.R., C.P., *British Medical Journal*, Feb. 25, 1893).

Lead is slowly and more or less continuously eliminated by the bowels, and to a very much less extent by the kidneys. When once deposited in the tissues, it exists as a stable compound over which drugs have little if any power. The best aids to elimination are baths and general massage, together with fresh air, good food, and all other measures by means of which the general health may be improved and healthy metabolism promoted. Whilst denying that potassium iodide promotes elimination of lead, the possibility of its being beneficial in some other way in chronic lead poisoning is not disputed.

A. F.

Prophylaxis of Degeneration.—*La France Médicale*, September 28, 1894, gives an abstract of Berillon's views upon the care of children showing marks of degeneration, a subject of importance to all interested in hygiene and the amelioration of human life. Not alone does degeneracy manifest itself by physical stigmata, by functional troubles like incontinence of urine, yawning, convulsive attacks, and by mental troubles, such as night terrors, somnambulism and perverted instincts. It also expresses itself in a special way by a tendency to automatic actions or habits. The frequency of unpleasant personal habits in degenerates is explained on the ground that the inhibitory or moderating power of the healthy brain is in them more or less in abeyance. These personal habits are invariably in direct opposition to the laws of health. A child who bites the nails, for instance,

conveys to the mouth little particles of various harmful substances that are detrimental to health. Onychophagists invariably present stigmata, and in the Parisian schools can usually be recognized by their general appearance. The habit of nail-biting is often accompanied by other worse vices. Attention and treatment, both moral and medical, brings about marked improvement in general health, and seems capable of arresting further deterioration.

L. F. B.

Myxœdema Cured by Thyroid Feeding.—

Béclère, in *France Medicale*, October 19, 1894, publishes an account of a case of myxœdema cured by the ingestion of sheeps' thyroids. Owing to some mistake, enormous doses were given, ninety-two grammes in eleven days. As the phenomena of myxœdema disappeared, symptoms of thyroid poisoning took their place, a condition that Béclère calls *thyroidism*, of which the manifestations are these: Tachycardia, with instability of frequency in heart-beats that allows a range of one hundred and ten to one hundred and sixty in a minute, following a change of position or moving about a few steps; elevation of temperature, insomnia, restlessness, polyuria, albuminuria, glycosuria; partial paraplegia, sensation of heat, increased perspiration, hastened respiration, the "tache cerebrale" of Trousseau, transient tremor in the movements of the eyes. Thyroidism bears such a close resemblance to exophthalmic goitre that it is not impossible that the existence of the latter morbid state may be due to a hypersecretive action of the thyroid gland. This abnormal thyroid activity may, of course, be dependent upon causes of the diverse character.

Before thyroid feeding the patient showed no signs of hysteria. While thyroidism was at its height there appeared a transient aphasia with monoplegia of the right upper extremity and local anæsthesia distinctly hysterical in nature. Thyroidian secretion in excess may then be considered one of the numerous causes of hysteria, according to Béclère, who looks upon its co-existence with Graves' disease as due to the intoxication that produced the major disorder. When hysteria is an underlying state, thyroidism increases its severity. It can rouse it or invoke it anew, according to circumstances. Reduced to its essential elements, exophthalmic goitre becomes clinically a manifestation of excessive thyroid gland secretion. Later, it may pass with general consent from the category of neuroses into that of the auto-intoxications provocative of hysteria. L. F. B.

Society Reports.

AMERICAN NEUROLOGICAL ASSOCIATION.

*Twentieth Annual Meeting held at the Cosmos Club,
Washington, D. C., on May 30 and 31, June 1, 1894.*

President, B. SACHS, M.D., New York.

*Secretary and Treasurer, G. M. HAMMOND, M.D., New
York.*

Concluded.

Dr. BURT G. WILDER gave an

EXHIBITION OF A SUICIDE'S BRAIN, WITH TWO PISTOL-BALL WOUNDS. REMARKS ON ITS FISSURAL ANOMALIES.¹

ABSTRACT.

There were shown the medisection and transected cerebrum, one of the pistol-balls, seventeen photographs of each hemi-cerebrum, two blackboard diagrams of this specimen and several wall-maps of other brains.

The brain was that of Dr. W. I. B., 35 years old, a dentist, resident in Ithaca, N. Y. It is interesting from five distinct standpoints: historic, anatomic, psychologic, pathologic and medico-legal.

I. *Historic.*—This is the fourth brain of a moral and educated person, of marked and known character, to come into the possession of Cornell University within four years, in accordance with the wishes of the deceased or the relatives, for scientific purposes, as set

¹ By a vote of the Association Dr. Wilder was requested to furnish a report of the above case for publication in the "Transactions."

forth in the blank hereto appended.* Its predecessors are those of an eminent lawyer and his wife, and of a school-teacher, the father of a distinguished graduate of Cornell. With these, through the courtesy of Prof. Thomas Dwight, is now temporarily associated the brain of Chauncey Wright; see these *Transactions*, 1890, and JOURNAL OF NERVOUS AND MENTAL DISEASE, November, 1890; also "Reference Handbook of the Medical Sciences," viii., Fig. 4779 and ix., Fig. 63. Unfortunately, at present, as in most collections, these five precious specimens are outnumbered by the brains of ignorant, insane or criminal persons.

II. *Anatomic.*--There were several unusual conditions of the fissures, four of which are here briefly described:

a. Occipital Fissure.—A superficial inspection might lead to the conclusion that it is very extensive on each side. A fissure-line extends from the calcarine f. over the dorsal margin to within 15 mm. of the ventral margin on the left and 20 mm. on the right. These might be interpreted as constituting marked examples of what is sometimes called the "external perpendicular fissure." Really, however, the true occipital fissures are unusually shallow, indenting the dorsal aspect only about 10 mm. on the left and 15 on the right.

b. Relations of the Central and Sylvian Fissures.—On the

* FORM OF BEQUEST OF BRAIN.

I, now of to
 student of Cornell University from 18 to
 18 and graduated in 18 recognizing
 the need of studying the brains of educated persons rather than those
 of the ignorant, criminal or insane, in order to determine their weight,
 form and fissural pattern, the correlations with bodily and mental
 powers of various kinds and degrees, and the influences of sex, age and
 inheritance, hereby declare my wish that, at my death, my brain should
 be intrusted to the Cornell Brain Association (when that is organized)
 or (pending its organization) to the Curator of the collection of human
 brains in the museum of Cornell University, for scientific uses, and for
 preservation, as a whole or in part as may be thought best. It is my
 hope that my family and friends may not oppose the fulfilment of this
 my earnest wish.

Signature Date

Witness

NOTE:—Copies of provisional diagrams of the fissures will be mailed upon application to the undersigned. For a brief statement of reasons for the study of the brains of educated persons, see Buck's Reference Handbook of the Medical Sciences (Wm. Wood & Co., New York) VIII., 163, and IX., 110.

BURT G. WILDER, M.D., Professor of Physiology, Vertebrate Zoology, and Neurology, Cornell University, Ithaca, N. Y.

left both centrals* enter the Sylvian, with a depth of at least 5 mm. On the right, the first central approaches the precentral, the second joins the Sylvian at a depth of about 3 mm.

c. Interruption of the First Left Central.—The dorsal portion of the first left central, measured in a straight line, is about 5.5 cm. long, the ventral about 4.2. Their contiguous ends overlap 1 cm., the ventral portion caudad of the dorsal; the intervening isthmus is about 6 mm. wide. The interruption is ventrad of the middle of the length of the combined fissures, and not at the junction of the dorsal and middle third, as is more common. For the case of Chauncey Wright, and for brief reference to other cases, see this JOURNAL, 1890, pp. 753-54, and "Reference Handbook of the Medical Sciences," viii., 158-159, and ix., 108.

d. Duplication of both Centrals.—So far as I am aware, only two instances of this anomaly have been recorded, viz., by Giacomini and Calori. The facts and detailed arguments are reserved for the later and fuller account of the whole cerebrum, when figures will render them more intelligible. I think there can be no doubt that the first (cephalic or anterior) on each side represents a central fissure, for the dorsal end bears to the paracentral gyre and its circumscribing fissure the relation that is normal and constant. The fissures interpreted as the second centrals present greater difficulties, but, it seems to me, less serious than are involved in their interpretation as postcentrals. Upon the whole, notwithstanding the extreme rarity of this peculiarity, I am led to conclude that it exists in the brain here presented.

As to the improbability that so rare an anomaly should occur outside of the large cities, it may be remarked that there have been recorded only four examples of the lack of the callosum among mammals, excluding man, and that all of these have occurred in the Anatomical Department of Cornell University; of the three incallosal cats, one is figured and described in the *American Journal of Neurology and Psychiatry*, 1883, 491-499; the incallosal sheep's brain was exhibited at the meeting of the Association of American Anatomists in Boston, 1890.

As a precedent for a possible radical disagreement among members of this Association in the interpretation of the alleged two central fissures, let me add, that, as stated by Giacomini ("Guida," 1884, p. 48), when his

bicentral brain was described, his first central was interpreted by Benedikt as the precentral, and his second central by Zernoff (Sernow) as a postcentral. Unless we are willing to decide between these fissural experts, Giacomini's specimen would have no central at all, almost a *reductio ad absurdum*.

III. *Psychologic*.—Dr. B. was undoubtedly peculiar in several respects. I am slowly gathering information, as to his mental condition, and will submit it later. He had two sisters and three brothers, all living.³

IV. *Pathologic*.—There were two holes in the head one mesal in the forehead, the other in the right temple. The cranium could not be preserved. From the frontal hole the track of a ball may be traced on the mesal sur, face of the frontal lobe to its ventral border, then dorsad to the precommissure where the ball, much distorted—was found on medisection of the brain. Apparently it was deflected ventrad by the ental table of the cranium, then deflected dorsad at the same angle. The injury was a mere abrasion of the cortex. The track from the temporal hole extends in a straight line, sinistro-dorso-caudad, to the left side of the cerebrum; in the hurried autopsy the ball, a .22, escaped detection. The parts traversed are the right subfrontal gyre, the insula, striatum, capsule, paracœle (lateral ventricle) callosum, corona, and left central region, the point of emergence being in the caudal lip of the second central fissure, just ventrad of the level of the isthmus in the first central. The orifices of adit and exit are ragged, as are also the walls of the channels, as well shown in the photographs. Before describing and discussing the nature of these wounds I wish to consult some recent observations by Horsley on the subject. We may infer that the first wound merely stunned the suicide for a brief period, and that he retained, or even regained, the power to fire the second and fatal shot.

V. *Medico-legal*.—Even upon the supposition that the frontal wound was comparatively harmless, the presumption is against the infliction of the second; in other words, the existence of two bullet wounds of the

³ It is here assumed, provisionally, that there are two central fissures on each side.

⁴ Referring to a report, too hastily credited by me at the time this paper was read, one of the brothers writes: "There has never been a suicide or any insanity in our family, nor, so far as I can learn, in the families of either of our parents for two generations back."

brain gives ground for at least the suspicion of foul-play. In the present case documents in the handwriting of the deceased establish the suicidal intention beyond a doubt. Furthermore, the ental surface of the frontal dura was blackened, an indication that the weapon was discharged in close contact with the skin. See the *Ithaca Journal* for April 13, 1894 for the remarks of Dr. C. E. Van Cleef upon a somewhat similar case.

DISCUSSION.

Dr. F. X. DERCUM asked if the first fissure were not really the pre-central.

Dr. WILDER replied that it was a first central, although it might easily be interpreted as a pre-central. This had the normal relation with the first central, so the difficulty was with the second one.

Dr. C. L. DANA said that he could not understand how two fissures of Rolando could be developed and did not believe there were two here. In the present case from an examination of the brain he had no doubt that the fissure of Rolando was single and was the anterior. The convolucional peculiarity of the brain was a rare and interesting one.

Dr. F. X. DERCUM said that if the first of the fissures described bore the normal relation to the para central lobule it must undoubtedly be the true central fissure. The second fissure must, therefore, be regarded as an unusually developed retro-central fissure. The retro-central is, as we know, very variable, sometimes existing as a small ramus of the interparietal, sometimes as a well developed, independent fissure, though, Dr. Dercum stated, he had in no instance seen a counterpart of the specimen presented by Dr. Wilder. However, the brain as a whole suggested marked accentuation of the perpendicular fissures. This is especially instanced by the anomalous course pursued by the parallel fissure in the left hemisphere. It pursues a markedly ascending course and terminates abruptly in the Sylvian fissure. Dr. Dercum further suggested that the condition could probably be explained on the supposition that the skull had been markedly brachycephalic.

Dr. HENRY R. STEDMAN read a paper on

THE MANAGEMENT OF CONVALESCENCE AND
THE AFTER-CARE OF THE INSANE (See page 785).

DISCUSSION.

Dr. E. D. FISHER said that he had listened with pleasure to this conservative paper, particularly the ideas about the early dismissal of the patients in suitable cases, and the retention of other cases. He thought the mistake was frequently made of allowing the patients to leave too soon. Where the delusions had disappeared, or where they were recognized as delusions by the patients themselves, and where there was the dread of the disgrace attendant upon being in such an institution, it was advisable to have them return to their homes. In answer to the question, "What shall we do with these patients after their dismissal?" he would divide the patients into two classes—those of the better class of patients, and the pauper insane. He was certainly heartily in favor of the idea of having some convalescent home for the former, and of some union between patients where they could return from time to time and be placed under the care of the physicians. This would often prevent a second attack after their dismissal. When a patient returned to a pauper asylum it was a pretty sure indication that he would remain there permanently. All could see the necessity for some such measure as that proposed, and he heartily endorsed the suggestion.

Dr. F. X. DERCUM, of Philadelphia, said that this paper opened up a very important phase in the care of the insane. He was heartily in accord with the suggestion that institutions be established intermediate between the ordinary asylum and the outside world.

Dr. M. ALLEN STARR said that it was very difficult to decide just when patients should be taken out of asylums. He had sent some to water-cure asylums in order to make a break between asylum and home care. The families of these people were also very difficult to manage, for they sat around the patient, as though he were a curio and was going to explode. Travelling was detrimental. An intermediate institution, he thought, would be very good.

Dr. P. C. KNAPP, of Boston, heartily endorsed the

views brought forward by Dr. Stedman. It was not uncommon to see, in the out-patient departments of general hospitals, patients who had formerly been in an insane asylum, but who, being unable at first to endure the trials of daily life, again manifested symptoms of nervous and mental disease, which they might have escaped had they had proper care in the period immediately following their discharge.

Dr. C. L. DANA said that this question, upon which they all seemed so well agreed, was an economic rather than a strictly medical one. He suggested the appointment of a committee of three to investigate and report to the Association upon some feasible plan for establishing a form of treatment, which could then be recommended as a measure for adoption by the State. He thought this would be a practical advance in the desired direction.

The PRESIDENT then appointed Dr. H. R. Stedman, of Boston, Dr. F. X. Dercum, of Philadelphia, and Dr. C. L. Dana, of New York, to serve on this committee.

He said that as regards this idea of caring for the pauper insane, he was heartily in favor of it. In private practice, when a patient had been in hospital for a considerable time, and a change seemed desirable, he was accustomed to send the patient to the country in the charge of a competent person. The influence of a wholesome sane mind over an insane one was a great advantage. There were many delusions from which a patient could not be freed. Some can, however, be affected by constant association with a sane person. Within the last five or six years he had tried this plan of treatment with entire satisfaction. It should be carried well into the period of convalescence,

Dr. STEDMAN in closing the discussion said that the matter of primary and chief importance was the formation of protective associations for the discharged insane patients, which should, for a time, provide for their supervision and assistance in the ways indicated. This was the first step, and such work prosecuted with vigor would, he thought, yield practical results. He was not prepared to advocate separate convalescent establishments for this class. Suitable quarters in private dwellings could be found by such societies for the special cases needing further oversight. He felt extremely gratified with the prompt and practical response which the Association had made to his appeal.

Dr. MORTON read a paper entitled

A CASE OF MULTIPLE NEUROMATA, WITH
EXHIBITION OF MICROSCOPIC SECTIONS
OF A LARGE NEUROMA REMOVED FROM
THE ULNAR NERVE.

ABSTRACT.

The tumor developed upon the ulnar about half way between the elbow and the wrist, and was about the size of a hen's egg. Cutting down upon the mass with a view of severing and suturing the nerve if necessary, or of dissecting out so far as possible its strands, he found that the tumor was lying quite free, except for a few thread-like adhesions, within a capsule, and that the nerve traversed this capsule from end to end, in five separated bundles. It was therefore possible to enucleate the tumor and replace the nerve strands without the slightest injury to the latter.

The tumor was a myxo-fibroma. The encapsulation of the tumor, and at the same time the confinement of the nerve bundles to the capsule, was novel and of importance to bear in mind in further operations upon such growths.

SPECIMENS SHOWN.

Dr. PHILLIPS COOMBS KNAPP, of Boston, showed sections of the spinal cord in a case of amyotrophic lateral sclerosis from a case in which the symptoms had existed only about fifteen months. There was present vascularity of the pyramidal tracts almost as great as in the case of acute myelitis.

Dr. J. HENDRIE LLOYD, of Philadelphia, exhibited sections from themid brain, pons, medulla and spinal cord from a case of chronic chorea.

PAPERS READ BY TITLE.

A case of Exophthalmic Goitre Cured by Thyroidectomy, by Dr. Frederick Peterson, of New York.

On the Significance of Exaggerated Knee-jerk and Ankle-Clonus and their Relation to Diagnosis, by Dr. G. M. Hammond, of New York.

Report of a case of Spinal Syphilis and one of Intracranial Syphilis, by Dr. Landon Carter Gray of New York.

Traumatism as a Cause of Locomotor Ataxia: a Critical Examination of the Evidence including a Report of Three Supposed Cases, by Dr. Morton Prince, of Boston.

Observations upon an Anencephalic Monster, by Dr. E. B. Angell and Dr. Elsner, of Rochester.

Cerebral Œdema, by Dr. George Preston, of Baltimore.

Gastro-intestinal Neurasthenia, that is, Nervous Dyspepsia, by Dr. Leonard Weber, of New York.

A Study of the Temperature Sense, by Dr. W. H. Ripley, of Battle Creek, Mich.

On the afternoon of Friday, June 31, the Association held its final session as a part of the general session of the Congress of American Physicians. A discussion upon Infectious Nervous Diseases was held, Drs. J. J. Putnam, of Boston, Chas. K. Mills, of Philadelphia, and F. X. Dercum, of Philadelphia, taking part.

ELECTION OF MEMBERS.

The following named gentlemen were elected to active membership: Dr. Ira Van Geison, of New York; Dr. E. B. Lane, of Dorchester, Mass.; and Dr. E. D. Bondurant, of Tuscaloosa, Ala.

ELECTION OF OFFICERS.

The officers elected for the ensuing year were: President, Dr. Philip Coombs Knapp, of Boston; Vice-Presidents, Dr. F. X. Dercum, of Philadelphia, and Dr. W. A. Jones, of Minneapolis; Secretary and Treasurer, Dr. G. M. Hammond, of New York.

THE NEW YORK NEUROLOGICAL ASSOCIATION.

Stated Meeting held at the Academy of Medicine, Tuesday Evening, October 2, 1894.

Dr. EDWARD D. FISHER, President, in the chair.

Dr. C. L. DANA read a paper entitled

CORTICAL LOCALIZATION OF CUTANEOUS SENSATIONS.

Dr. DANA said that since his first article on this subject was written, a considerable amount of evidence has accumulated: the facts thus collected may be grouped in three classes: (1) the experimental; (2) the clinical and pathological; (3) the purely pathological.

DISCUSSION.

Dr. E. C. SEGUIN said the character of Dr. Dana's paper was such that it could hardly be discussed in an off-hand way. One point that occurred to him during the reading of the paper was that our methods of studying the sensibility of the skin and muscles in cases of cerebral paralysis are far from systematic or perfect. More particularly is this true with reference to the detection of slight alterations of the cutaneous tactile sense. We attach too much importance to the distance at which the patient can distinguish one point from another, and we are apt to neglect the more delicate contact tests for tactile sensations, which are so often impaired in cases of cerebral paralysis. The imperfections of our methods in this respect, Dr. Seguin said, would lead him to agree with the author of the paper that in many of the cerebral cases in which anæsthesia was reported absent, its presence was really overlooked.

Many observers confuse the various modes of tactile sensibility and the muscular sense, strictly speaking, and on this account some cases have been incorrectly observed, by inferring from certain tests which really ap-

ply to the tactile sensibility of the skin, that the consciousness of the muscular movements, their force and direction, was lost.

With reference to the theoretical part of the question brought up in the paper, Dr. Seguin said he felt very much disinclined to return to the old theory, ascribing a sensory motor function to the motor cortex. There is no anatomical evidence that common sensory fibres proceeding from the periphery to the centres have their termination in any cells or groups of cells. The cells of the sensory apparatus are at the periphery, and as the fibres proceed centripetally, they subdivide into filaments of infinite smallness, which ramify and are lost between the cells, and may possibly have a connection with the unformed nervous substance. With such a conception of the structure of the central sensitive fibres, we need not be surprised if the function of common or tactile sensibility be found in ill-defined and extensive areas, most probably larger than the so-called motor zone. The "muscular sense" stands apart, and we have some reason to believe that we know its cortical "centre," but it is clearly outside the motor zone.

Dr. M. ALLEN STARR stated that a number of cases in addition to the two quoted by Dr. Dana had come under his observation, which have confirmed him in the theory that sensory disturbances are frequently met with in connection with lesions of the central convolutions. He is not, however, prepared to accept the view that the sensory and motor centres are coincident. The following case, showing that the muscular sense may be lost from a cortical lesion, without paralysis, recently came under his observation. The patient was a young man who entered the Presbyterian Hospital last February. Four years previously he had received a severe blow on the head, followed by very intense headache at the point where the blow was received. This was on the left side of the head, about an inch and one-half from the median line, and two and one-half inches posterior to the fissure of Rolando. In addition to the headache he had been subject to attacks epileptic in character; it was not cortical epilepsy, the man having no convulsions, but psychical epilepsy. He had acute maniacal attacks, lasting about fifteen minutes; after such an attack he fell asleep, and on awakening he had no memory of what had occurred after the onset of the attack. These attacks became more frequent, incapacita-

ting him for his work, and making his life a burden to himself and his friends. He had no paralysis; no anæsthesia of any kind, tactile, temperature, pain or muscular. It was decided to operate for this condition. An opening two inches in diameter was made in the skull by Dr. McCosh, one and one-half inches to the left of the median line and two and one-half inches posterior to the fissure of Rolando, and an angiomaticous mass, consisting of a collection of veins, about three-quarters of an inch in diameter, was discovered. The larger vessels leading into this were tied off, and the mass removed. As soon as the patient came out from the æther, the house physician noticed a peculiar awkwardness of the fingers and hand on the right side. On examination it was found that as a result of the operation the patient had developed a most complete ataxia of the right hand, up as far as the elbow. He was unable to feed himself or carry a glass to his lips. The motions made with that hand were irregular and extremely ataxic. There was no disturbance of the tactile, pain or temperature senses. There was no disturbance of the power of movement, but when his eyes were blindfolded he was unable to reproduce with his right hand the position given to the left, and *vice versa*. This ataxic condition was much improved at the end of six weeks, and had entirely disappeared after three months. This case, Dr. Starr said, illustrated the localization of the muscular sense in the parietal lobe, and showed it to be entirely distinct from the tactile, temperature and pain senses, and from the motor power. He agreed with Dr. Seguin that we must remodel our ideas regarding the physiology of the sensory process. We must accept the idea that sensory impressions coming in from the skin pass upwards through the spinal cord, the medulla and the posterior part of the internal capsule, being distributed by means of collateral fibres to all the various parts of the gray matter, and that they probably have their terminal radiations in the posterior central convolution, not in cells, but in a fine terminal network. This in turn interlaces with the motorregion.

In conclusion, Dr. Starr said he was inclined to maintain the position that the posterior central convolution and the parts behind it are more concerned in sensation than the anterior parts, which are more concerned in motion. While there is no doubt a very close association between the two, yet the parts of the cortex must be considered separate.

Dr. LANDON CARTER GRAY said it seemed to him that we have thus far failed to discover the cortical centres of the tactile, muscular, painful and thermic sensations. As we all know, these senses may be absolutely lost in certain lesions of the cord, the medulla, and in the region of the basal ganglia. All the basalar portion of the brain is inaccessible to experimentation and observation, and in that region, perhaps, these centres may be located. In a few cases coming under his observation, in which the lesion was found in the motor area of the brain, he thought he was able to detect some impairment of the tactile sensibility (rendered somewhat dubious by the habits of the patient), and in one case, in which the lesion was in the vicinity of the ascending parietal convolution, there was marked impairment of the muscular sense. Dr. Gray said he was fully in accord with the statement made by one of the speakers that our present methods of detecting a loss of tactile or muscular sensibility are not sufficiently exact; the æsthesiometer certainly does not answer the purpose.

The PRESIDENT said he agreed with Dr. Seguin that the examination of patients with cerebral lesions is frequently too cursory, and that in many cases a careful examination would no doubt disclose some disturbance of muscular or tactile sensibility. The method of ascertaining the cutaneous sensibility by means of two pin points he has long ago abandoned, as it is very unreliable, and the results will differ even in a healthy person. It is certain, as Dr. Dana stated in his paper, that in some cases of cerebral lesions no disturbances of sensibility are present—at least to any marked degree. In a case recently under his observation, in which the lesion was essentially confined to the cortex, the patient had epileptic seizures limited to one side of the body, and there was at no time any tactile or muscular disturbance, nor was there any motor weakness.

Dr. DANA, in closing the discussion, said he did not agree with the statement made by Dr. Gray to the effect that thus far no progress has been made towards the localization of cutaneous sensations. Many cases are on record in which a certain portion of the cortex has been excised, and as a result there has been paralysis and anæsthesia in the region controlled by that cortical area. In his paper he only attempted to show that the cutaneous and muscular sensibilities have a representation of some kind in the areas of the brain that are known as

motorial. Whether there is a definite special sensory centre in this region he does not pretend to say. We do know that all the clinical and pathological evidence at our command points to this part of the brain and nowhere else as the seat of these cutaneous disturbances.

Dr. STARR stated that an effort is being made in France to raise a fund for the erection of a statue to Charcot as a memorial to his scientific work. This movement has been taken up with interest by Charcot's pupils in Germany, Italy and other parts of the Continent, and committees have been appointed to solicit subscriptions and forward them to the treasurer of the fund in Paris. Dr. Starr said that, as there are probably many gentlemen in this country who are indebted to Prof. Charcot, and who are attached to his memory by their personal acquaintance with the man, it seemed to him appropriate that the New York Neurological Society should participate in this movement and appoint a committee to solicit contributions to this fund. He made a motion to this effect, which was carried.

Book Reviews.

LECTURES ON MENTAL DISEASES. By Henry Putnam Stearns, A.M., M.D. P. Blakiston, Son & Co., Philadelphia.

This work comprises a series of lectures, which were originally delivered before the medical students of Yale University, and are now published, in the hope, as the author says, that they may prove of service to students in other medical schools, and to general practitioners.

We believe that the author's hope will be realized and his aim accomplished. The book is pre-eminently designed for beginners in a field of medicine, which, notwithstanding its absorbing interest and paramount importance, is so universally neglected by the average practitioner, and relegated to the specialist. It is the general practitioner who is the first to see many of the cases of mental derangement that ultimately find their way into the asylum, and it is frequently only by the timely recognition of barely indicated signs and symptoms of impending danger that much harm may be averted.

This book is not intended, nor can it supplant the more systematic and philosophic works on psychopathology, and hence it will not appeal to advanced students of the subject; but for such who have not yet begun to study the affections of the mind, no book has yet come under our observation which can supersede it for perspicacity, commendable conciseness, and elegance of style.

P. M.

Editorial Notes.

PROMISES.

The JOURNAL now completes its twenty-first birthday.

Once it had a narrow, isolated, weak environment; now in its manhood it encircles in its strength the entire medical world. Its capabilities are greater than the average reader realizes. By a unanimous effort on the part of the neurological workers in America this coming year, it will out-distance all other (combined) neurological journals.

We intend to see this consummated very shortly, and it is this promise that we trust will bear fruit—*unanimity*. The JOURNAL is for the advancement of American Neurology. If you have a good paper send it to us.

The JOURNAL has been promised for the coming year a number of interesting editorials, and it here gives notice that it desires anyone who has any topic to discuss, editorially or otherwise, to write us as soon as possible in reference to the matter, as space is valuable.

The Weir Mitchell *address and discussion* has drawn world-wide attention and comment. We have not been able to give room to all letters, articles and criticism on this subject, and hope to be understood that we are not intentionally thwarting or obstructing the "good cause" (as you like it) one way or another, except by Shakespeare's process of not *over* repeating. We are expecting to receive much information from not only our State Commission of Lunacy but from others in the way of *true* medical progress. We trust to be able shortly to give a careful analysis of the State Commission of Lunacy's Report on the Ward's Island Investigation. We have been assured that the Commission intend to turn their attention to some practical way of utilizing the vast material under their charge and disposal, to systematic scientific study. They are at work on the question of Pathology and Pathologist. We hope it is not in *statu quo* too long. We trust soon to see something in this line accomplished. Promises and politics are stubborn things. It is the purpose of this JOURNAL as its title implies, to not only combine mental and nervous diseases in its text, but to exert an influence in the direction of bringing them together as a mutual science. It was the JOURNAL's purpose of the past year, and it will be its purpose for all time, to advocate the neurologist entering the closed gates and narrow environments of the asylum, and study with his brother alienist at the hospital bedside and in the Sol-

arium or on the fields the cases once ascribed only as in his domain. It is just and right. So we call upon all to go on with the good work.

If it had not been for the generous and hearty support from the leading Pharmaceutical houses the JOURNAL could not possibly have been as generous in its circulation, size and general excellence, or keep as it has done its promises. We think that our columns are, to say the least, clean—nothing to offend; and our advertising pages are valuable records of new remedies.

We would be unfair to ourselves if we did not draw especial attention to our Directory of Institutions—the very best in the country, and complete in as far as those represented are the leading ones. This Directory has been of value many times as a reminder of an address or special place of treatment.

There have been fifty-five contributors to the JOURNAL the past year. We promise room for fifty more, if they are only the right kind.

SOMATOSE.

The new meat nutrient.

A monograph with experiments. July, 1894, London.

This is worth reading, and is one of Helbing's Pharmacological Records. The following recapitulations are interesting, to say the least:

1. Somatose is readily absorbed even in diseased conditions of the stomach and intestinal tract.
2. Somatose is tolerated and retained in sufficient quantities to ensure against the evils of mal-nutrition, and unlike artificial peptone preparations, which become obnoxious to the palate, Somatose actually stimulates the appetite.
3. Somatose does not disturb the most delicate stomach, never causing flatulence or diarrhoea.
4. Somatose is tasteless and odorless, and therefore agreeable and easy of administration, so that if desired it can be given without the knowledge of the patient, and in all cases without exciting the repugnance produced by the use of peptones.

Miscellany.

Celerina and Aletris Cordial, equal parts, teaspoonful every four hours, will relieve ovarian neuralgia.

Headache in childhood is rapidly relieved by Celerina in doses of ten minims four times a day.

Ox-gall, one grain of the inspissated, with one drop of oil of wintergreen to one teaspoonful of Celerina, will relieve headache. The remedy may be repeated every hour.

Celerina and Aletris Cordial, equal parts, teaspoonful every four hours, is a most efficient remedy for amenorrhea.

PRE-SENILITY.

Anster F. Walker, L.R.C.P.I., L.M., L.R.C.S.I., etc., Hurricane Lodge, Glenbeigh, Ireland, says: "I have found Sanmetto of much service in a case of sexual debility, and can strongly recommend it."

NERVOUS EXHAUSTION—ENLARGED PROSTATE.

H. L. Dowsing, L.R.C.P. London, M.R.C.S. Eng., L.S.A., Mem. Brit. Med. Assoc., Beverley Road, Hull, England, says: "I beg to say I have used Sanmetto in a case of nervous exhaustion, also in a case of enlarged prostate, and in both cases I have been much pleased with the improvement which has taken place."

SANMETTO IN ALL URETHRAL INFLAMMATIONS AND AS A VITALIZING TONIC TO THE REPRODUCTIVE SYSTEM.

I desire to give unqualified recommendation to Sanmetto in all cases of urethral inflammation. As a vitalizing tonic to the reproductive system I know of no preparation or combination of medicines that will do its work so quickly and pleasantly as Sanmetto. My experience with it has extended over quite a large number of cases, embracing cystitis, difficult and painful micturition, chronic gonorrhoea, seminal emissions, enuresis, and enlarged prostate, and I propose to use it in all diseases of the genito-urinary organs, for the best reason, viz., It does not disappoint the patient or the physician.

Chaska, Minn.

F. D. CHAPMAN, M.D.

A GENTLE LAXATIVE.

The profession, as well as the public, have long appreciated the importance of a simple laxative. Time out of mind remedies have been in every-day use in the home for this purpose, but it remained for the California Fig Syrup Company to furnish a pleasant, potent, perfect laxative, safe to be used in the home by members of the family of all ages.

The company has frankly informed the medical profession that the chief laxative ingredient of their compound is senna, so treated that all tendency on its part to gripe and produce irritation and subsequent debility in the bowels is removed. The chief feature claimed by the company for their Syrup of Figs is the fact that the component parts of the product have all disagreeable taste disguised by a mingling of aromatic carminatives in such a way as to make it really pleasant to the taste; and these aromatics at the same time overcome all disposition upon the part of the drug to pain and discomfort; and carrying, as it does, the stamp of the company's responsibility, it is always reliable and uniform in its effects.

It is conceded by every practical physician that a family laxative is one of the few medicinal agents which they will entrust to family use, and surely anything which will tend to assist in the relief of that *bete noire* of child and adult life, constipation, is a helper in the direction of general healthfulness.

The medical profession has not only consented to the use upon the part of families under their care of Syrup of Figs, but when desiring to order gentle purgatives and simple laxatives, they cheerfully specify in their prescriptions the product referred to; and the wonderful success of this gentle family laxative is largely owing to its universal use by the medical profession.—*Medical Mirror*.

A LETTER.

Dr. R. Cantalupi, writing from Naples, Italy, under date of July 24th, 1893, says:

"Bromidia has produced successful results in all the most varied forms of insomnia. Among others who have been benefited by its use is Professor Cesare Olivieri, well known as a most distinguished surgeon in this city, and who, after undergoing tracheotomy for neoplasm in the larynx, suffered terribly from insomnia, which the usual hypnotics all failed to relieve. Hearing of this from a mutual friend, I advised the use of Bromidia, which promptly produced the desired result."

I will unhesitatingly say that I consider Peacock's Bromides much superior to the ordinary bromides, and the Chionia I believe to be an extremely successful preparation of a very valuable therapeutic agent. I have used both with excellent success.

JOHN J. SHAW, M.D.,
Plymouth, Mass.

THE MARVELOUS KOLA NUT.

NATIVES OF AFRICA CONSIDER IT BENEFICIAL TO THE
HUMAN SYSTEM.

WASHINGTON, November 19.—The State Department has been calling upon United States consuls in Africa for specific information respecting the marvelous Kola nut, which by its peculiar action upon the muscular system enables the African negroes to make long journeys, bearing enormous loads under tropical suns and across difficult country without food. Cases authentically reported prove that an old negro may carry a 176-pound bag of coffee four leagues by chewing a single nut slowly. Robert P. Porley, United States Consul at Sierra Leone, Africa, has sent in the first report on the subject, treating of the means of growing and preparing the nuts. He says the natives eat the nuts in early morning as a stay against the want of ordinary food, while traveling, and in the evening to induce sleep. Altogether, they consider that a general benefit to the human system is derived from the consumption of Kola, say a single nut morning and evening.—*Detroit Free Press.*

[We are just in receipt of an exhaustive Monograph on Kola, issued by the Scientific Department of Frederick Stearns & Co., Detroit, Mich., which gives full information regarding the wonderful tonic stimulant properties of this drug, and many interesting facts relating to its growth and the important part it plays in the social intercourse between the natives of Africa, where it is indigenous. Messrs. F. Stearns & Co. were the introducers of Kola nuts to the medical and pharmaceutical professions of the United States, being the first to offer the drug for sale in the beginning of the year 1881. They are headquarters for Kola nuts in this country, importing them in the fresh state in immense quantities direct from Africa. Any physician who is desirous of obtaining a sample of the fresh nuts for planting or a copy of the Monograph on Kola should address their Scientific Department.

PROTECTION.

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